

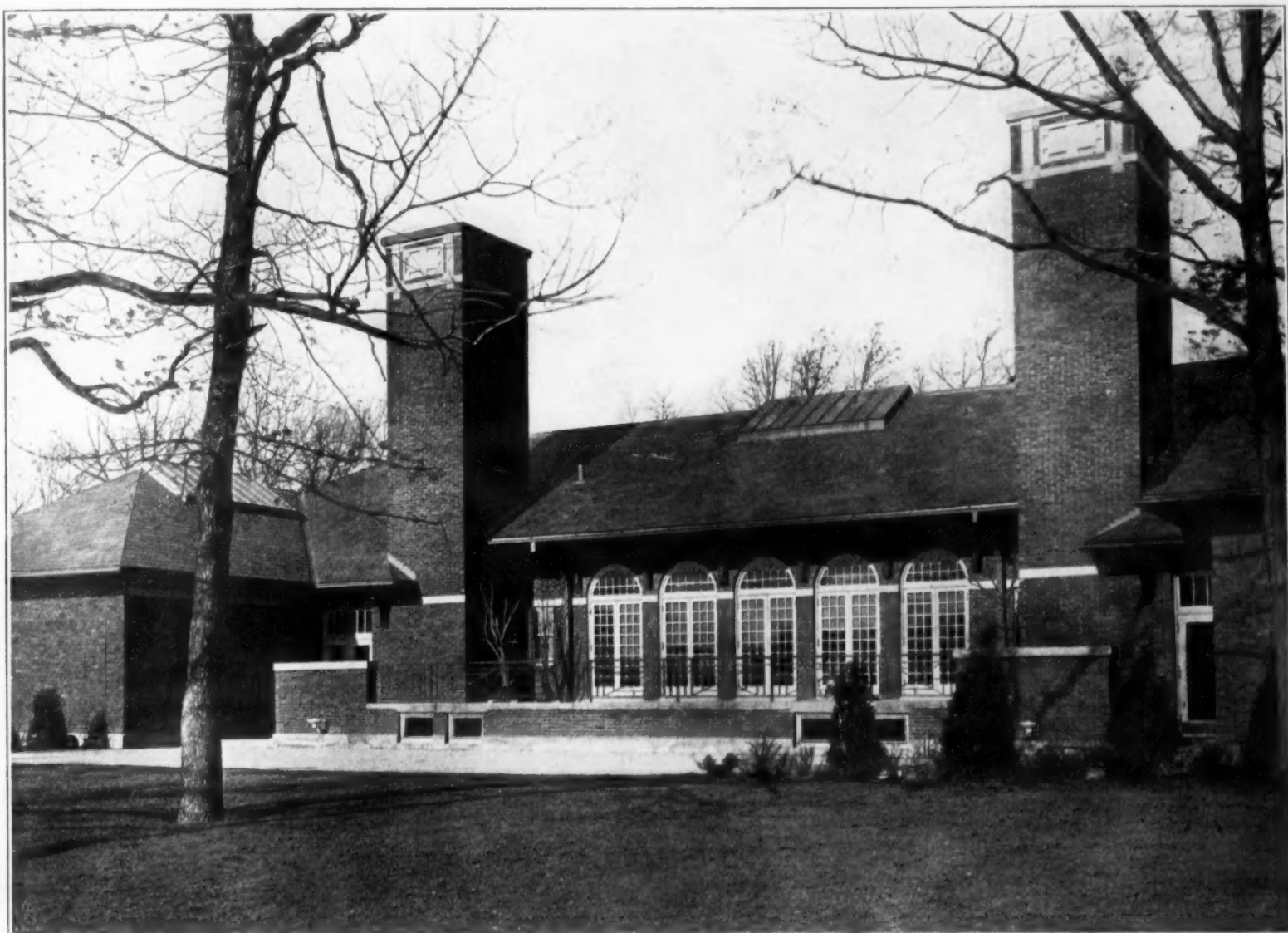
# School Board Journal

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KINDERGARTEN TERRACE, SKOKIE SCHOOL, WINNETKA, ILL.

## ONE STORY SCHOOL BUILDINGS

Dwight Heald Perkins, A. I. A.

Illustrated by examples from the work of Perkins, Fellows and Hamilton, Architects, Chicago.

Most innovations in school planning are caused in the beginning by financial considerations. The one story school is no exception.

It is true, however, that the study and development of this type has revealed other reasons than economy for its adoption; reasons strong enough to control even tho no saving resulted.

The cost of construction per pupil may be lower in the one-story type than in the ordinary two-story scheme, all other elements being equal. There is no fixed reduction or change in the cost of building per cubic foot, as is shown by the following table:

	Cost per cubic ft.	Cost per pupil
1912—Holly School, Holly, Mich. (High & Elementary).....	14c	\$118.00

1913—Lincolnwood School, Evanston, Ill. (Elementary).....	20c	138.00
1915—Skokie School, Winnetka, Ill. (Four classrooms only built at present) (Elementary).....	17½c	176.00
1915—Osseo School, Osseo, Wisconsin (High and Elementary).....	10c	166.00
1917—Danville High School, Danville, Ky. (High only).....	14c	172.00

The high cost per pupil at the Skokie School is due to the fact that only four classrooms were built, and that the assembly hall and kindergarten for the maximum capacity were erected at the beginning.

The low cost per pupil at Holly is due to the

including of as many classrooms of large numbers of pupils as was possible to construct within the area and funds available, while the higher cost per pupil at Osseo—notwithstanding the low cost per cubic foot (this was not of incombustible interior construction) results from a smaller number of pupils accommodated with a large amount of space and equipment. Shops, domestic science rooms, and gymnasium are in the Osseo school but not at Holly.

As stated above, no general inference can be drawn from a table limited to one-story schools of varying conditions. What can be done of value, is to compare a one-story and a two-story school, as ordinarily planned, and of the same educational capacity. This has been done in numerous cases by the writer, and has shown a saving per pupil in the cost of construction of from fifteen to twenty per cent. This because



Classroom, Skokie School, Winnetka, Ill.

of the elimination of most of the basement space—the main floor is of concrete on cinder filling directly upon the earth—and because of the entire absence of floor construction over wide spans or large areas.

Apart from the consideration of cost the desirable features of the one-story type are:

Safety from fire or panic.

Top light for each room and liberty in relation to orientation.

Independent assembly and dismissal of classes due to separate outside doors for each classroom.

Ease and frequency of use of the assembly hall, making it of daily and hourly value.

Ease of conversion for neighborhood gather-

ings, not only in the evening but during class hours as well.

Ease of addition of rooms—future extensions.

Propriety of use of combustible materials in roof and ceiling construction, all of which could burn without jeopardizing life.

Safety from fire or panic is obvious—all walls and partitions below the ceiling line are fire-proof; there is neither construction nor space for combustibles beneath the children, and exits

are everywhere and in all directions. The entire school could be dismissed thru the windows, which are only 3' 6" from the ground, without delay or injury.

Top lighting is perfect if controlled. In the schools here shown each skylight has a series of revolving sheet metal vanes which are counter-balanced and easily controlled by the teacher. She may exclude the direct glare of the sun, or may darken the room entirely for stereopticon purposes, or may open up full the skylight opening on a cloudy day.

No corner or inside desk has less than a full measure of light, and shades or flowers in the windows may be enjoyed without injury to the pupils' eyes thru insufficient light. Again—the sunlight may be admitted thru the top so as to purify the air in a room in which all the windows face north, giving complete freedom in the location of a building, and the orientation of its exposed surfaces and windows.

An assembly hall in constant use, even tho that use be incidental, has been found to be valuable when the assembly rooms are pleasantly furnished and decorated. They should not be shut off for the occasional ceremony, as the old-fashioned parlor in the home was, and are not—when planned as the buildings here shown are planned. On the other hand, their strict use as gathering places is in no-wise restricted.

During evening assemblies it has been found advantageous to allow the parents to use the classrooms as committee rooms, coat rooms, etc.

Additions are easily made by simple extensions of the corridors, and the construction of rooms between and along them exactly as in the original portion. Such additions can be made without interfering with the school sessions.

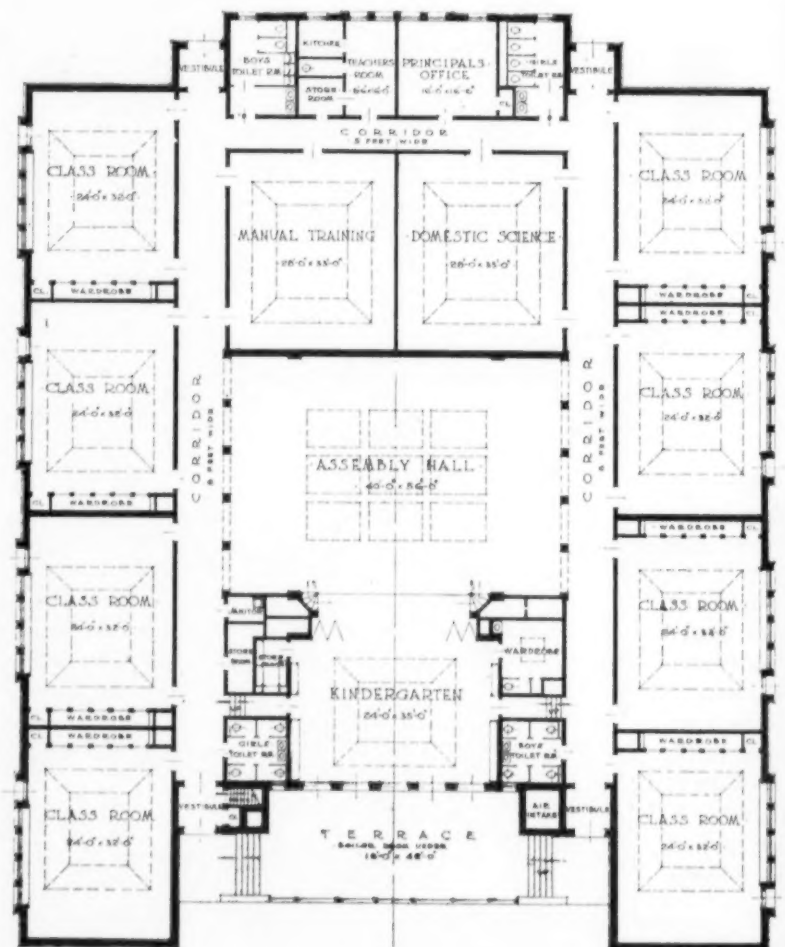
While in no case is the use of combustible material justified when such use jeopardizes life, it can be readily seen that it is proper to use such material in the ceilings and roof for the purposes of economy when the loss resulting



SCHOOL BUILDING - DIST. 75 - EVANSTON - ILL.

COLFAX STREET & 100 DANIEL AVENUE  
PERKINS, FELLOWS & HAMILTON - ARCHITECTS

Lincolnwood School, Evanston, Ill.



FLOOR PLAN

Skokie School, Winnetka, Ill.





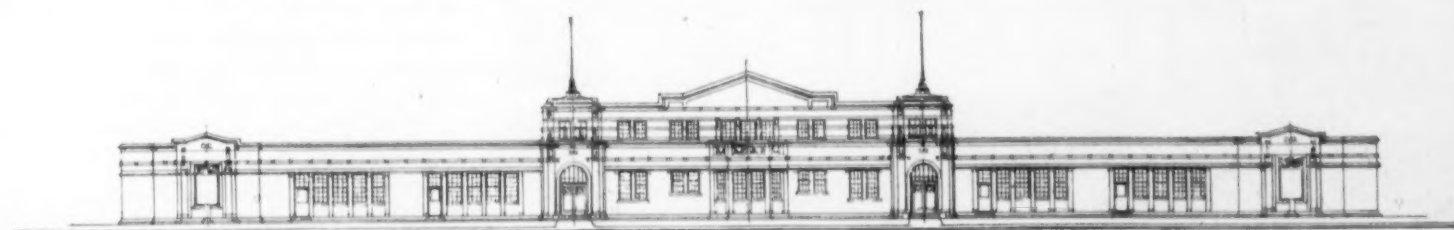
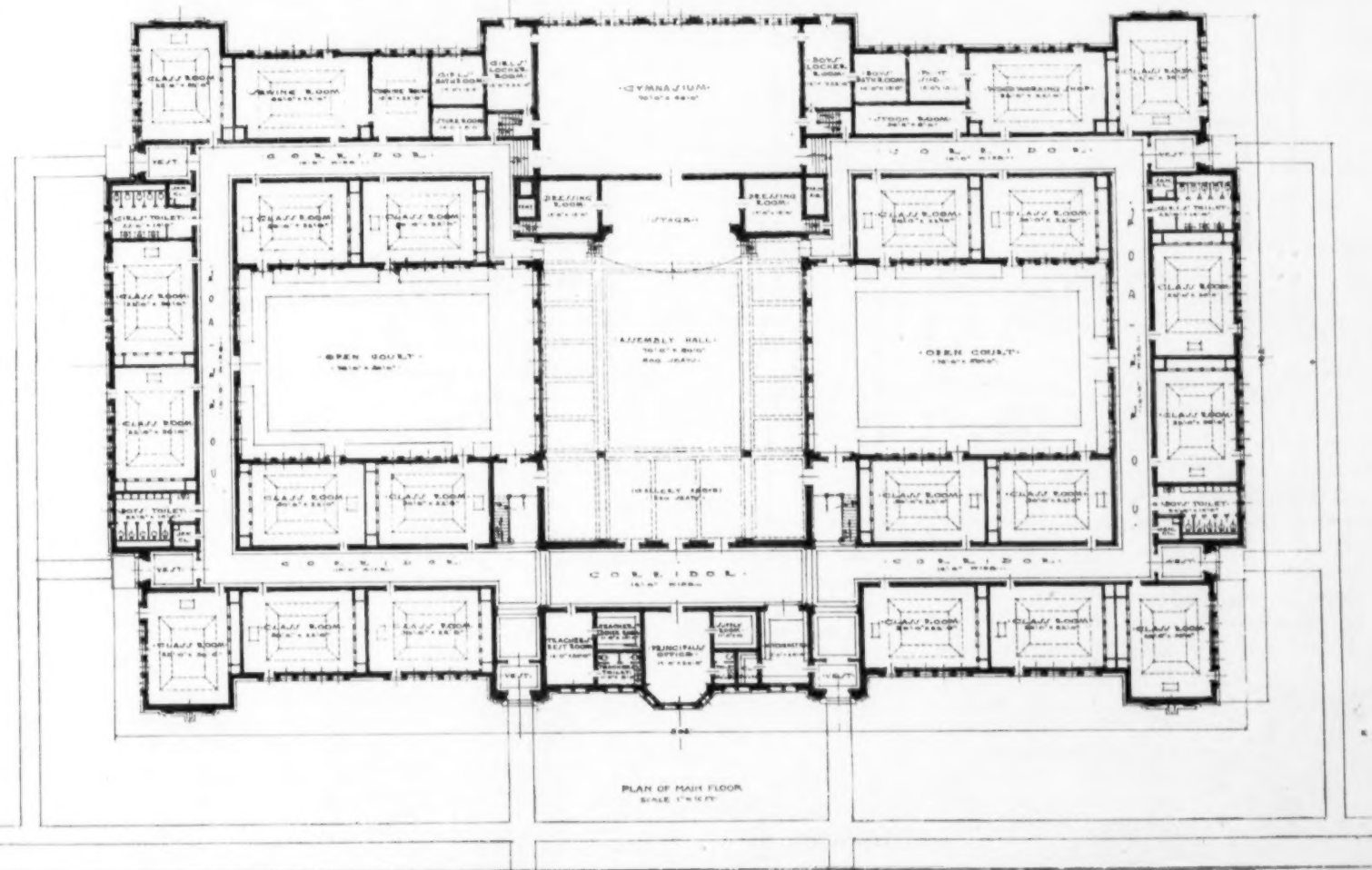
LINCOLNWOOD SCHOOL, DISTRICT 75, EVANSTON, ILL.  
Perkins, Fellows & Hamilton, Architects, Chicago, Ill.

from fire is financial only, and can be covered by insurance.

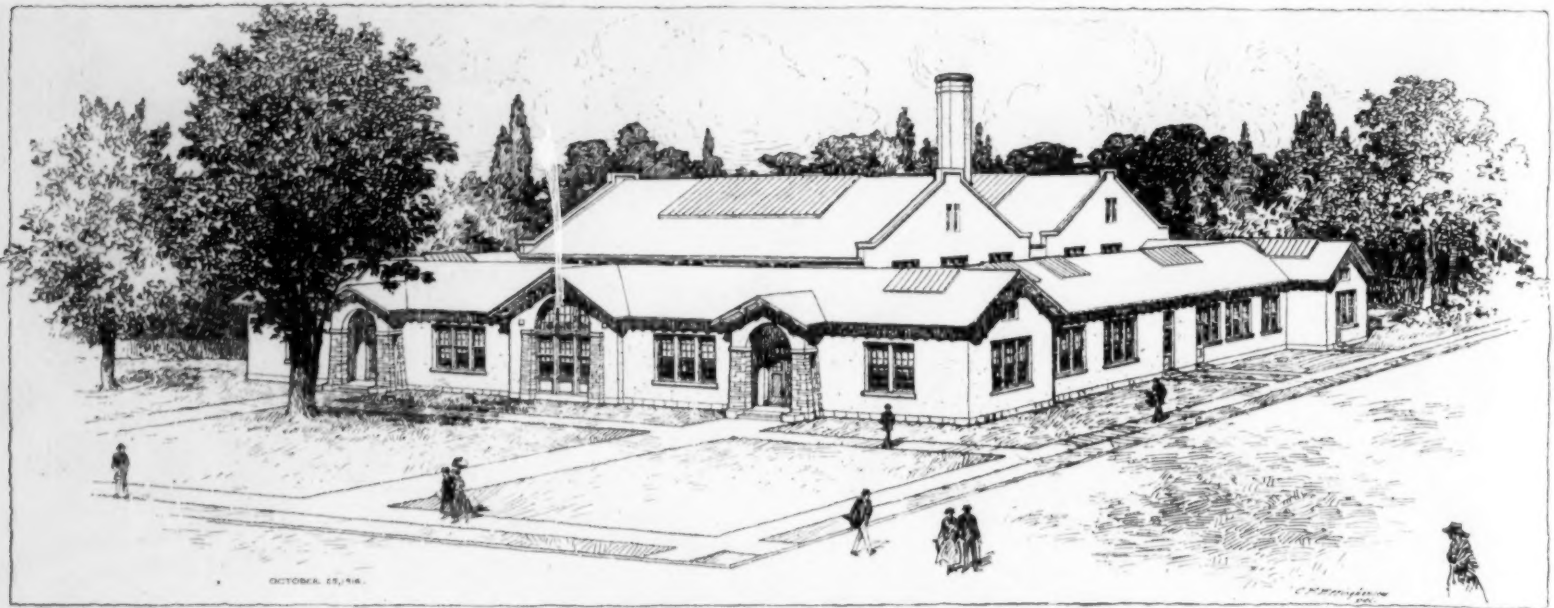
be filled with a discussion of heating and ventilation. It is not the purpose of this article to include a treatise on that subject, but only to

mention the fact that buildings of the one-story type spread over a large area have been, and are being, successfully warmed. It is obvious that

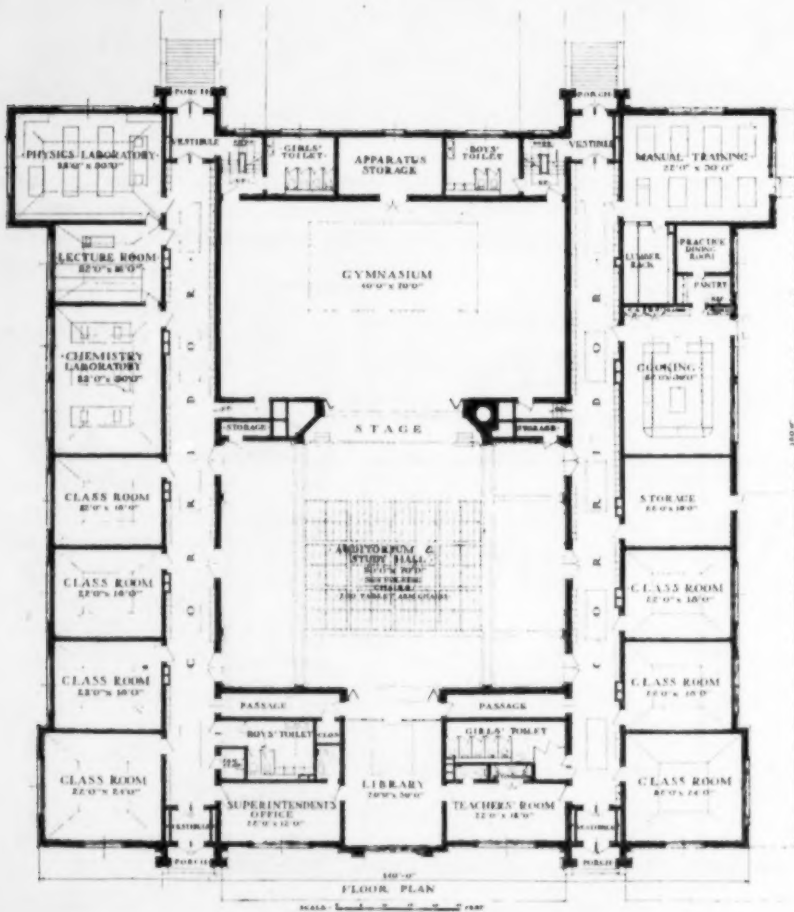
Volumes, even "five-foot book shelves," might



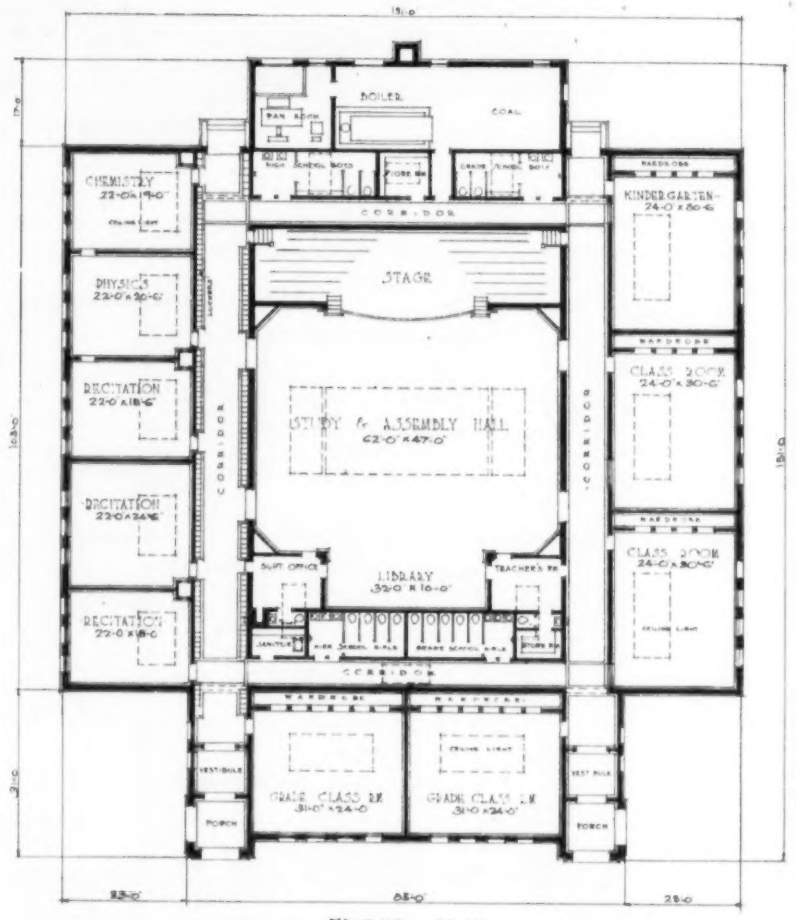
NORTH ELEVATION  
ELEMENTARY PUBLIC SCHOOL TO BE ERRECTED AT WINNETKA, ILL.  
Perkins, Fellows & Hamilton, Architects, Chicago, Ill.



HIGH SCHOOL - DANVILLE, KENTUCKY.

PERKINS, FELLOWS & HAMILTON, ARCHITECTS.  
CHICAGO, ILLINOIS.

Floor Plan of High School, Danville, Ky.



FLOOR PLAN

Floor Plan of Holly High and Elementary School, Holly, Mich.

Holly High and Elementary School, Holly, Mich.  
Perkins, Fellows & Hamilton, Architects, Chicago, Ill.

they are not warmed from one central, indirect plenum system, nor are they heated from a number of plenum units wherein the dependence for heat is placed entirely upon warm air forced into the rooms by fans.

In those schools, and in two and three-story buildings for that matter also, dependence for heat for warming should be placed upon direct or local radiation. The buildings here illustrated, with the single exception of the Osseo building, are heated by steam radiators placed directly in the classrooms, or else in air shafts in the walls surrounding each room, so that the entire building may be heated adequately without turning the fan. The purpose of the fan is simply to deliver fresh, warm (not heated) air to the rooms in sufficient quantity and fre-

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# TO BOND OR NOT TO BOND?

Wilford E. Talbert, Assistant in Charge, Bureau of Educational Investigation,  
Taxpayers' Association of California

To bond or not to bond, that is a question that perplexes many a school board at the present time. In fact, the question of raising money is always a trying one to the school administrator, both because of the limitations in his own experiences as a financier and because of the fact that he has to adopt a policy which will meet the approval of the rank and file of ordinary taxpayers.

In a single article of this sort it is impossible to discuss in detail all of the phases of a question which is so deeply entangled with political science, public policy, and both public and private finance. However, we shall attempt to state in outline form a few fundamental principles which we hope will be of assistance to those school officials who even now may be wondering what they ought to do.

## The Problem Defined.

Prior to 1900 it was comparatively easy to finance the public schools. Only a cheap textbook type of education was provided, teachers were poorly trained, and few pupils were retained beyond the fourth grade of the elementary school.

In those days people demanded education only as fast as they were willing or able to pay for it, and the school truly constituted the chief interest of the majority of taxpayers.

With the growth of cities and of large commercial and industrial enterprises, however, there grew up a demand for government on a much larger scale. State governments were complicated with numerous boards and commissions and special departments, and local governments likewise multiplied their usefulness and incidentally their expenses.

Even the school participated in the general round of development. New schools were added, both above and below the regular curriculum. New subjects, requiring smaller classes, more expensive equipment, and better teachers, were introduced into both elementary and high schools. More children stayed on into the more expensive upper grades and high school.

In short, however justifiable the causes, the taxpayer finds that his tax bill has grown out of all proportion to his wealth or income. And in the meantime most of the old schoolhouses and other public buildings that fully served their purpose so long have begun to be worn out, or outgrown, or out-of-date. What wonder, then, that when it becomes necessary to raise money for new improvements, the taxpayer asks if there isn't some other way to obtain it than by taking it out of his pocketbook.

## Why Not Pass the Burden Along?

The taxpayer very naturally says to himself, "Since I have had extraordinary burdens enough in my time, and since the schools to be built are for my children and my children's children, why not pass the burden along? Why not let them have the school now and pay for it later when they begin to reap the benefits of their education?"

The proper answer to this question will depend somewhat upon local conditions and somewhat upon other principles to be discussed later.

NOTE—For a more exhaustive treatment of the school bond question, see California Taxpayers' Journal, Vol. 1, No. 5, Sept. 1917. Taxpayers' Association of California is committed to the proposition that from both the educational and the financial standpoints, every dollar spent on the schools ought to bring 100 cents' worth of educational benefit to the boys and girls concerned. The findings and policies of the Bureau of Educational Investigation, which is maintained by the Association, are contained in the California Taxpayers' Journal and other official publications. Publication offices, 522 American Bank Bldg., Los Angeles, Cal.

However, it is quite generally true thruout the country that the cost of education has been increasing much faster than property valuations or population. If this condition continues and our children also have to pay the expenses of the reconstruction period following the war and also to keep up the payments of principal and interest on the debt of the national government, the chances are very strong that they will have burdens enough of their own without sharing any of ours.

*The question suggests itself. Won't the natural increase in the value of the improvement take care of the interest on the debt?* If this were the case, a school bond issue would be a good investment for a community. However, it should be borne in mind that a school building is non-productive financially, that it depreciates in value very rapidly, and that the cost of maintenance is comparatively high. As a matter of fact a school bond is a good investment only to the money lender. To the taxpayer it is a debt made doubly heavy, because of the interest, and passed on to some future generation for payment.

## How do Bonds Affect Public Credit?

An issue of bonds affects public credit just as a mortgage affects private credit; in fact, the bond is a mortgage on every piece of property which is subject to tax for the payment of the same.

Another thing to be remembered is that each issue of bonds makes succeeding issues harder to sell and consequently makes them bring a lower price, or bear a higher rate of interest, or both.

Also when bonds are voted, taxes have to be levied to pay for them, and that makes it increasingly harder to meet current expenses as time goes on; hence more bonds become necessary. A growing city that bonds itself once is thus very apt to acquire the bonding habit, a habit which is most disastrous in its consequences, for this process can only continue about so far until it becomes impossible to dispose of bonds bearing any lawful rate of interest. Besides, a city which is bonded close to the limit is not very attractive to new capital, nor is such a city able to meet a real crisis such as a fire or a flood.

## The Present Money Market.

In this connection it might not be out of place to make a few remarks about the present money market. Charts published in the various financial journals of the country show a very rapid decline in the price of all securities within the past two years. This means that school districts, which are generally prevented by law from selling bonds at less than par, will have to pay very much higher rates of interest for their money. Furthermore, each new loan floated by the federal government is going to raise the price of money by a considerable amount.

To illustrate what this means, suppose it is desired to erect an \$80,000 building with the proceeds of forty-year serial bonds, and suppose the money could have been secured two years ago for 4 per cent. Now it might be necessary to pay 6 per cent. Such a building would be worth only \$80,000. Two years ago it would have cost \$145,600 to build it, by such a bond issue, and today it would cost \$178,400 to use the same process. It is obviously expensive to build by bonds at the present time.

## Our Duty to the Government.

Still another very important aspect of this problem is our duty to the federal government.

Within the past few weeks public officials have repeatedly been requested by the government at Washington to suspend all local improvements that can possibly be spared, so that capital, labor, and materials shall be left free for the successful prosecution of the war.

The estimated governmental requirements for the ensuing fiscal year constitute approximately one-third of the national income. It is hence, highly important, from the standpoints of both the taxpayer and the government, that the school board consider very seriously whether or not contemplated improvements can be dispensed with.

It should also be borne in mind that, just as the federal bond issues have seriously disturbed the money market of the entire country, just so will every additional local bond issue be a hindrance to the government in its work.

## Bonding by Whatever Method is Expensive.

Bonds are said to constitute the most expensive known means of obtaining public funds. This is due to the amount of interest that has to be paid in addition to the cost of the improvement itself. For almost any long-term bond issue the interest will be found to equal the principal by the time it is all paid, and if the interest is more than 4 per cent it is very likely to exceed the principal.

A good example of the way in which interest payments accumulate, even where a low rate obtains, was recently pointed out for the city of Oakland, California. The money spent on interest on school bonds in that city during the past seven years was sufficient to have built two modern and well-equipped technical high schools of fireproof construction and with a pupil capacity of 2,000 students each, despite the fact that the total increase in attendance in the high schools for the period only amounted to 1,724 pupils.

The interest alone (not to mention the principal) which was paid out in any of the last three years would have easily provided first class accommodations in Class A buildings for all of the increased attendance in the elementary schools during these same years. No doubt any city that has acquired the bonding habit can show similar figures.

The saddest significance of these figures is that all of this interest money benefits no one but the money lenders. The Oakland children aren't getting the buildings which the money would buy; in fact the city has been debating over another bond issue practically ever since the last buildings were completed. And while the city continues to be confronted by new demands, the buildings go on depreciating as fast or faster than they can be paid for.

## Short Term Serial Bonds Are Cheapest and Best.

Presumably the average reader is more or less familiar with the different kinds of bonds, classified as to method of redemption. However, if current practice is any criterion, school administrators are not all informed as to the relative merits of each. We shall, therefore, mention, in passing, the prevailing types.

(a) By the *sinking fund method*, a sufficient amount is set aside each year to accumulate at compound interest enough money to pay off both interest and principal. There are so many possibilities for error in calculation and for misdirection of funds by this method that it is prohibited in some states and is generally looked upon with disfavor by investors. It is the most expensive type in common use and should by all means be avoided wherever possible.



(b) By the *annuity method*, an equal sum composed of combined interest and principal is paid off each year. The computations required are so complex that it has not come into very general use for the payment of school bonds.

(c) By the *serial or installment method*, regular installments are paid on the principal, and interest is paid annually on the unpaid balance. This method is the cheapest; it is simple in operation; officials do not forget to make payments; and, if the repayment is properly planned, the largest installments of combined interest and principal come during the earlier years when the greatest advantages are being reaped and before the heavier maintenance charges and the greater depreciation become operative.

Since the relative cost of the different methods depends upon the amount of interest accumulating, it follows that the short term serial bond is both the best and the cheapest.

But even the serial method is subject to abuses.

#### Long Term Serials Are Costly and Unwise.

The laws of California and of many other states permit bonds to be issued for periods of as long as forty years. The Clovis high school district (in Fresno County, Cal.), however, has established a precedent for shorter terms by raising \$60,000 by 5 per cent bonds which are to run only ten years. The interest saved by this procedure (\$45,000) is 75 per cent of the value of the improvement.

But the long term bond is not only very costly but very unwise. School architecture is now in the beginning stages of a new evolution. Even buildings which are not worn out are very apt to be out-of-date long before the end of forty years. And besides there is the possibility that they may be outgrown so that they would be useless so far as their contemplated purpose is concerned. There is hence no such a thing as a "permanent improvement." *The term of a bond should never be longer than the substantial usefulness of the improvement.*

#### Greater Portion of Debt Should Be Paid During Earlier Years.

Unless the debt is divided into equal installments, the larger payments should be made first—by those responsible for the issue, by those who are enjoying the improvement most, and by those who have the least to pay for maintenance. Such a plan also very materially lessens the amount of interest.

This precaution is not infrequently disregarded, and thus some very sad mistakes are made. For example, in March, 1910, the city of Corona, California, issued \$30,000 worth of thirty year 5 per cent bonds, the payments of principal to be equally distributed over the last ten years. This means that \$30,000, the amount of the original issue, will have been paid out in interest before a cent has been paid on the principal. Also the improvement will have been used twenty years (and will perhaps be practically worn out or outgrown) before any of the debt is paid.

About the time the children of these far-sighted citizens of Corona begin to face the necessity for constructing a new building, they will discover that they still have before them the task of paying for an old one that their fathers built.

Perhaps there aren't many localities where the needs of the future have been so utterly disregarded as they have been at Corona (The city did the same sort of thing on four different occasions), but it is no uncommon occurrence to find the largest payments deferred to the end of the period.

A very common type of this bad form of bond issue is that found at Fresno, California. On June 12, 1909, \$150,000 of 5 per cent bonds were

issued, payments to be made as follows: first payment, 1914; \$5,000 payable each year for ten years; \$10,000 payable each year for ten years; final payment 1934. Thus, by the time the term of the bonds is half over only one-fourth of the debt will have been paid. It's a simple problem in arithmetic to figure out the excess amount of interest which such a plan needlessly calls for.

#### Very Small Bond Issue Should Not Be Tolerated.

The Tax Payers' Association of California has in its files records of a number of very small bond issues, some of them for less than \$500, which have recently been voted in school districts of California. Occasionally, relatively small issues are also found in cities.

In all such cases, the cost of elections and the cost of validating and selling the bonds, together with an unusually high rate of interest, make the cost out of all proportion to the benefits. In most cases the money could be raised with less trouble and expense by a direct tax.

*But when rural districts are so poor that they have to vote twenty year bonds in order to raise \$500, it is time the "district system" was wiped off the map.* We have passed the stage when education should only be given to those who can afford to pay for it.

#### State Supervision Needed.

As has been already stated, most school authorities have had only limited experience in dealing with large financial problems, and it is not to be expected that they would, in all cases, know how best to plan a bond issue.

For illustration let us refer once more to the Corona issue of March, 1910, mentioned above. The issue provided that no payments should be made on the principal until the end of twenty years. But the law of California requires the county officials to begin levying taxes, at the middle of the term (in this case at the end of fifteen years), sufficient to pay annually the interest and "a proportion of the principal of said bonds equal to a sum produced by taking the whole amount of said bonds outstanding and dividing it by the number of years said bonds then have to run."

This means that the taxpayers would raise \$2,000 a year for five years without applying any of it on the debt, and that thereafter they could legally only raise \$2,000 a year, though the conditions of the bonds required \$3,000 annually to be paid. And besides all of this confusion, the district has to raise \$3,750 of additional interest to pay the bondholders for the use of money that is lying idle in the county treasury, waiting to be paid to these same bondholders.

It is to avoid just such errors as this that the Tax Payers' Association of California is advocating the state supervision of public bond issues. Local districts may know how much money they want to raise and what rate of interest they are willing to pay, but the precise manner of payment could better be left to competent state authorities to determine. Furthermore, material savings should result from the lower interest rates or better prices that would obtain if the state guaranteed all bonds and if all dealings in bonds could be transferred to a single, responsible expert.

#### Bond Money, Being "Easy Money" is Often Wasted.

Probably no form of expenditures is less carefully watched by the public than the "bonded construction fund." Even payments of interest and principal are generally taken care of automatically by county officials and the local school authorities really know little about how much is being collected. Very seldom does either interest on the debt or depreciation on improvements ever enter into statements of the cost of conducting the schools. If you don't believe it, consult a few current school reports.

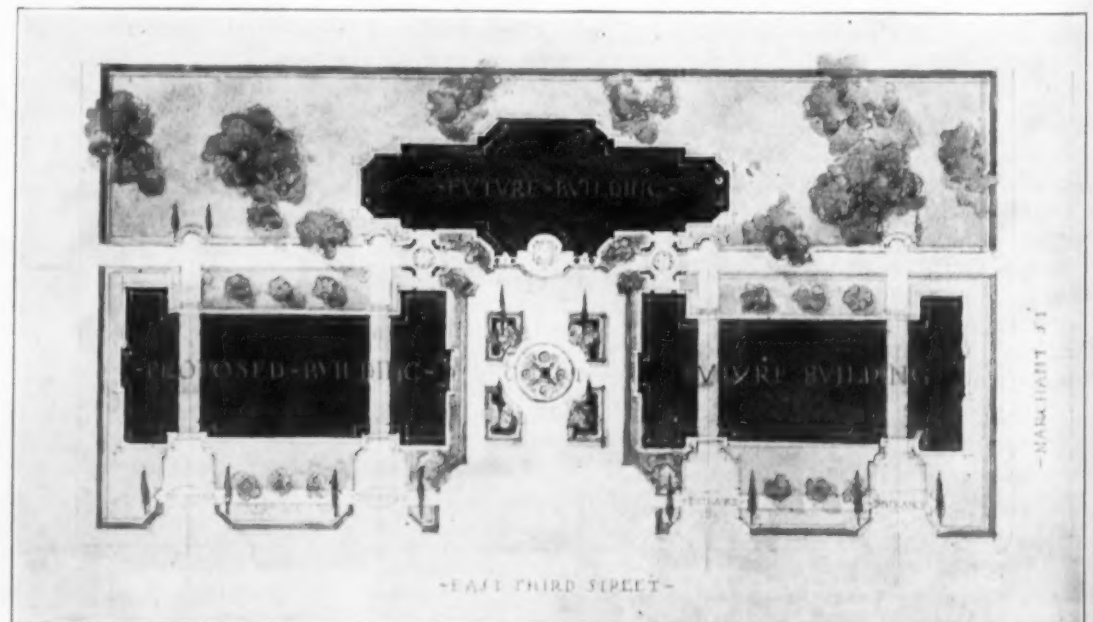
#### Bonds Should Never Be Voted Except in Cases of Extreme Necessity.

Surely anyone who has made a thoro study of the question will agree that bonds as a means of raising money are to be looked upon only as a last resort. (Incidentally, someone would perform a great service to school officials by working out the exact combination of circumstances—taking into consideration wealth, population, existing debt and taxation, previous growth, and present school accommodations—which constitutes a "last resort.")

Very frequently improvements can be provided for by a temporarily high tax rate. For example, the city of Oakland, California, in the past seven years spent \$1,288,186 from the proceeds of direct taxes for improvements. To have accomplished the same results by bonds would have cost over \$2,500,000. In the year 1914-15, when \$364,519 of this amount was raised, the tax for improvements represented only twenty-seven cents out of a total rate of \$3.38 on the \$100 for all city and county purposes. In the same year nearly twenty cents was levied for interest and redemption of school bonds.

A very much better plan than either bonds or excessive taxes would be a forward-looking building policy. For example, it is a well-known fact that the city of Portland, Oregon, one of the most rapidly growing cities in the United States, has kept up with all of its building re-

(Continued on Page 76)



Plot Plan, Watsonville High School, Watsonville, Cal.

(See next page.)





WATSONVILLE HIGH SCHOOL, WATSONVILLE, CAL.  
W. H. Weeks, Architect, San Francisco, Cal.

# A CALIFORNIA HIGH SCHOOL

## THE WATSONVILLE HIGH SCHOOL.

No state in the union has experienced such a wonderful development in the character of its school buildings as the state of California. The improvement has not been simply in the design of buildings, but also in their arrangement and in the permanence of their construction. This development has been a reflection in part of the great progress which has been made in the character and scope of education in the state, and has been influenced not a little by the two wonderful expositions which were held at San Francisco and San Diego in 1915.

The climate and vegetation of California, no less than the ruggedness of its mountains and the beauty of its valleys, have been sources of inspiration to California architects. It is altogether fitting, therefore, that its architecture reflect something of its Spanish pioneer days, and that it mirror something of the grand manner of topography, and that it be flavored with the warmth of its Southern and even tropical climate.

The new High School at Watsonville, Cal., reflects a good deal the present growth and character of the architecture which has become characteristic of California. The building is distinctly original in type and quite different in detail and manner from the common institutional schoolhouse of the east and the middle-west. The outer walls are treated with concrete in a warm buff color. The roof is a strong, red tile and the trimmings are red brick, caen stone and gray-green window sash.

The building is the first unit of what will be a three-building group and the present building supplements an old high school structure to the rear.

The architect has departed from the usual plan of placing the assembly hall at the rear of the structure by locating it in the most prominent position between the two front entrances. The classrooms and study room are placed at the rear and on both ends of the structure and occupy the entire second floor as well as those parts of the first floor not occupied by the assembly room. The general arrangement of the building is direct and straight-forward and is extremely flexible both because of the certain growth of the school and the intended changes in the use of the various rooms.

The building faces north so that the assembly hall, art room and other rooms which do not require direct sun-light, are on this front, while the classrooms face the south where they receive a maximum of sun-light on bright days and of direct light on dull days.

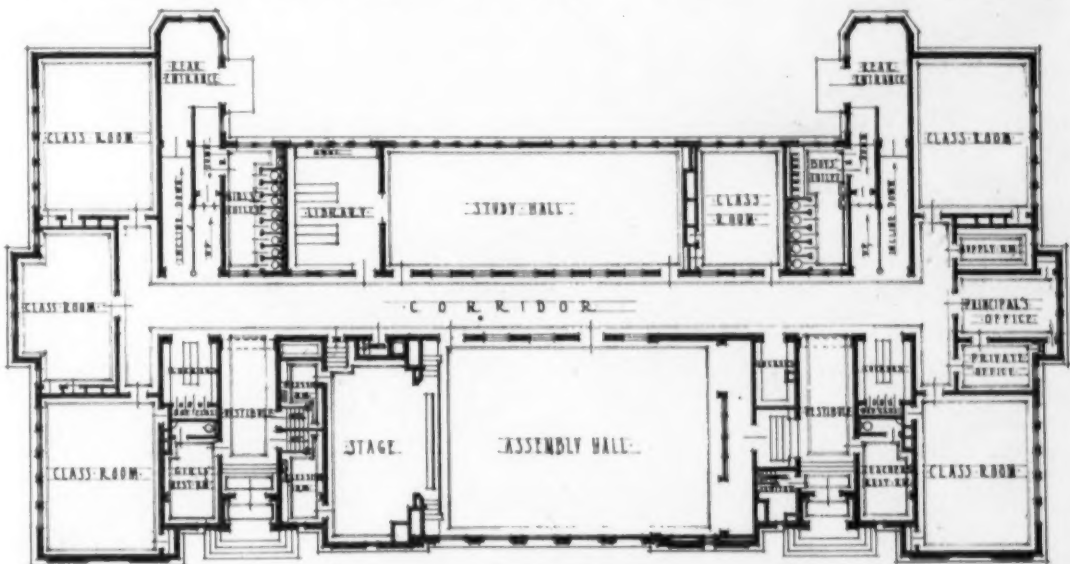
The assembly room has a seating capacity of 600 and is arranged so that a portion of the floor is level and a portion is slanting. It is

intended that the former part shall be available for exercises requiring a level space. The seating is movable and a rather ingenious arrangement is provided for transporting the chairs on small wheeled trucks to a space under the sloping floor. The stage is completely equipped for amateur theatricals, with scenery and electric lighting. It is fitted with a heavy plush curtain. The room is lighted by semi-indirect fixtures and is equipped with a booth for a motion picture machine and stereopticon.

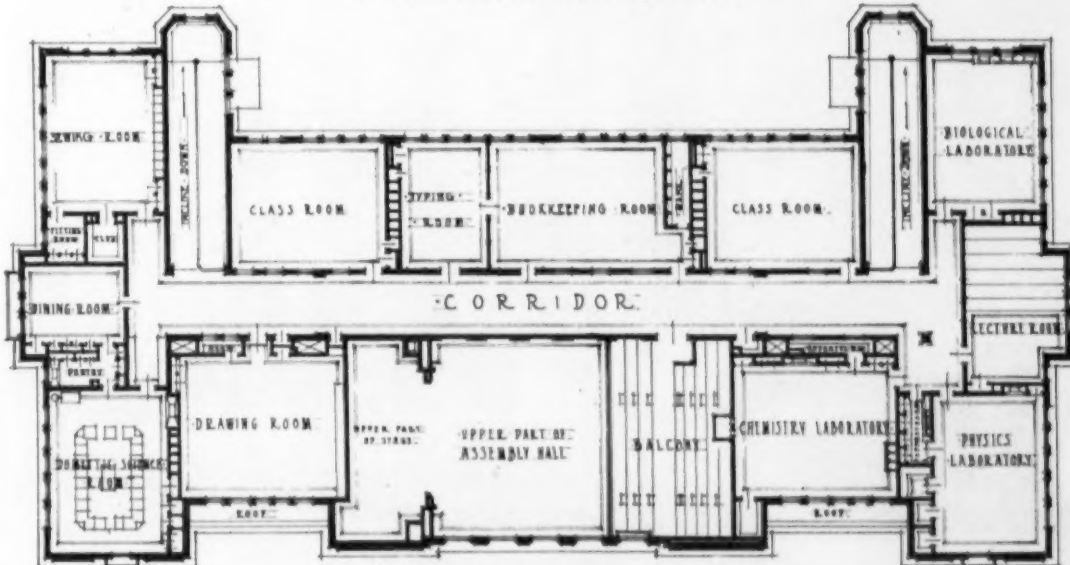
Opposite the assembly hall on the first floor

is a study room with a seating capacity of 100 students. Connected with this room is the library which is arranged and equipped both for general reading and for reference use.

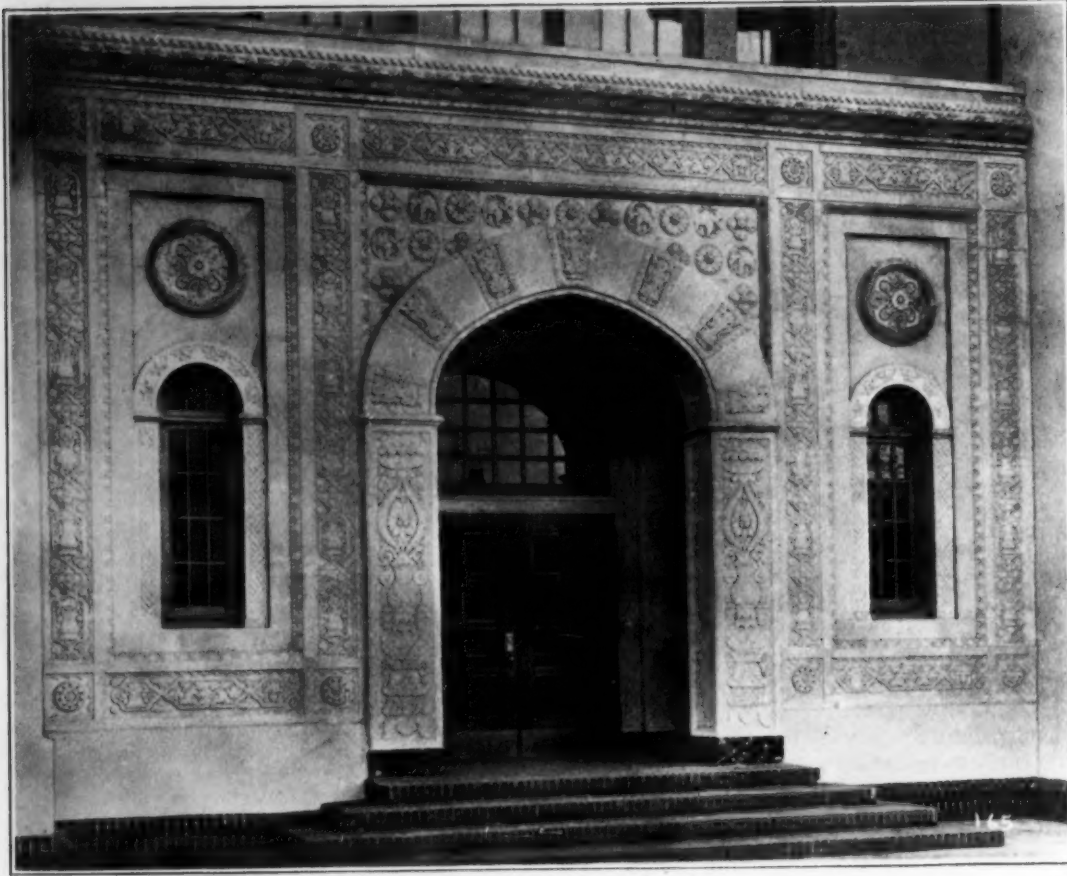
On the first floor there are also five additional classrooms of the standard type, each splendidly lighted, and containing a bookcase and teacher's closet. The administrative offices are also on this floor and include a room for the principal of the school and a room for the city superintendent. In the administrative office of the principal are centered the program clock sys-



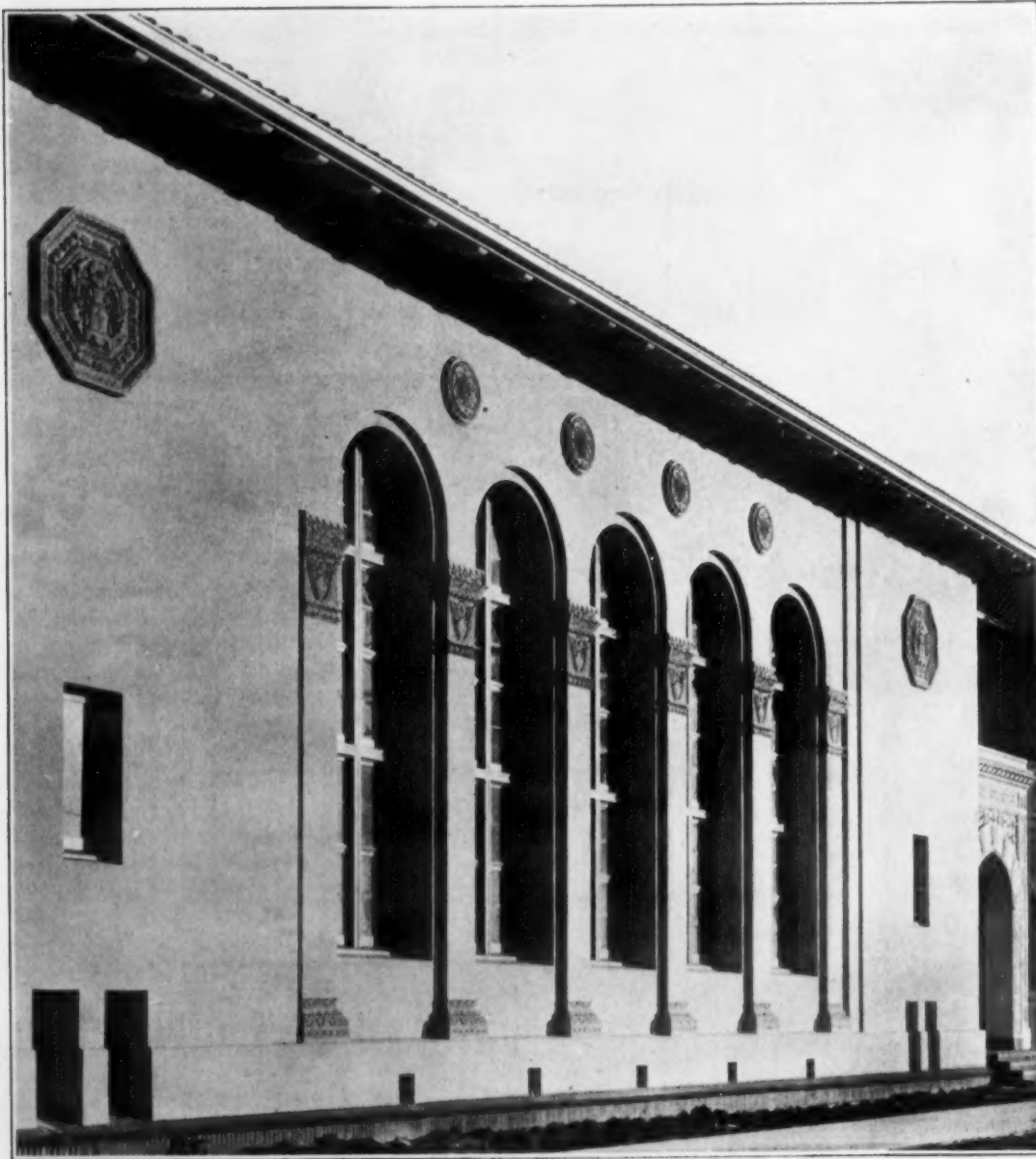
First Floor Plan, Watsonville High School.



Second Floor Plan, Watsonville High School.



Detail of Main Entrance, Watsonville High School, Watsonville, Cal.



Window Group of Assembly Hall, Watsonville High School.

tem and the telephone system of the school. Rest rooms and dressing rooms for girls are also provided on this floor.

Not the least unique feature of the school are the inclines which lead from the first to the second floor and which have been introduced instead of stairways. The inclines are made of concrete and they are absolutely fireproof. The concrete is extremely easy so that travel is safe and rapid.

On the second floor there are four classrooms similar to those on the first floor. The laboratories are also on this floor and are grouped for efficiency and economy. The chemical laboratory is especially fireproof and has a special composition floor laid over solid concrete. It is both water proof and acid proof and is arranged so that accidents to the plumbing will not injure any portion of the building. The room is equipped with special tables and individual experimental hoods.

The domestic science department includes a cooking room of the usual type, a pantry, a dining room, a large sewing room and a small fitting room.

On the second floor there are also rooms for the art department and a general lecture room for science, etc.

The building is heated by means of a steam plenum system with automatic Johnson control. The boilers are fitted with oil burning equipment of the newest automatic type. The building is also equipped with a complete vacuum cleaning system. The toilet rooms are fitted with heavy duty fixtures of the newest school type.

While the building is not absolutely fireproof the corridors, the inclined planes, the assembly hall, chemical laboratory, as well as the heating equipment, have floors, walls and ceilings made entirely of concrete. The entire structure is carried on reinforced concrete piers, and metal lath and tile have been liberally used. The classrooms have hard maple floors and the woodwork, which is reduced to a minimum, is finished in a special aluminum gray stain.

The building was designed by Mr. William H. Weeks, San Francisco.

## SCHOOL HEATING COSTS

A Valuable Report of Mr. J. H. Brady, Chief Engineer of the Kansas City, Missouri, Schools.

Valuable data for purposes of comparison and a thoroly practical method of keeping tab on heating and ventilating costs are incorporated in the annual report of Mr. J. H. Brady, chief engineer and superintendent of school buildings of Kansas City, Mo. Mr. Brady is the oldest school engineer in the United States in point of service and has been at the head of the mechanical department of the Kansas City schools for 31 years. Anyone who has visited Kansas City and has seen its school plant will bear testimony to the efficiency of the upkeep and management of the splendid school buildings of the district.

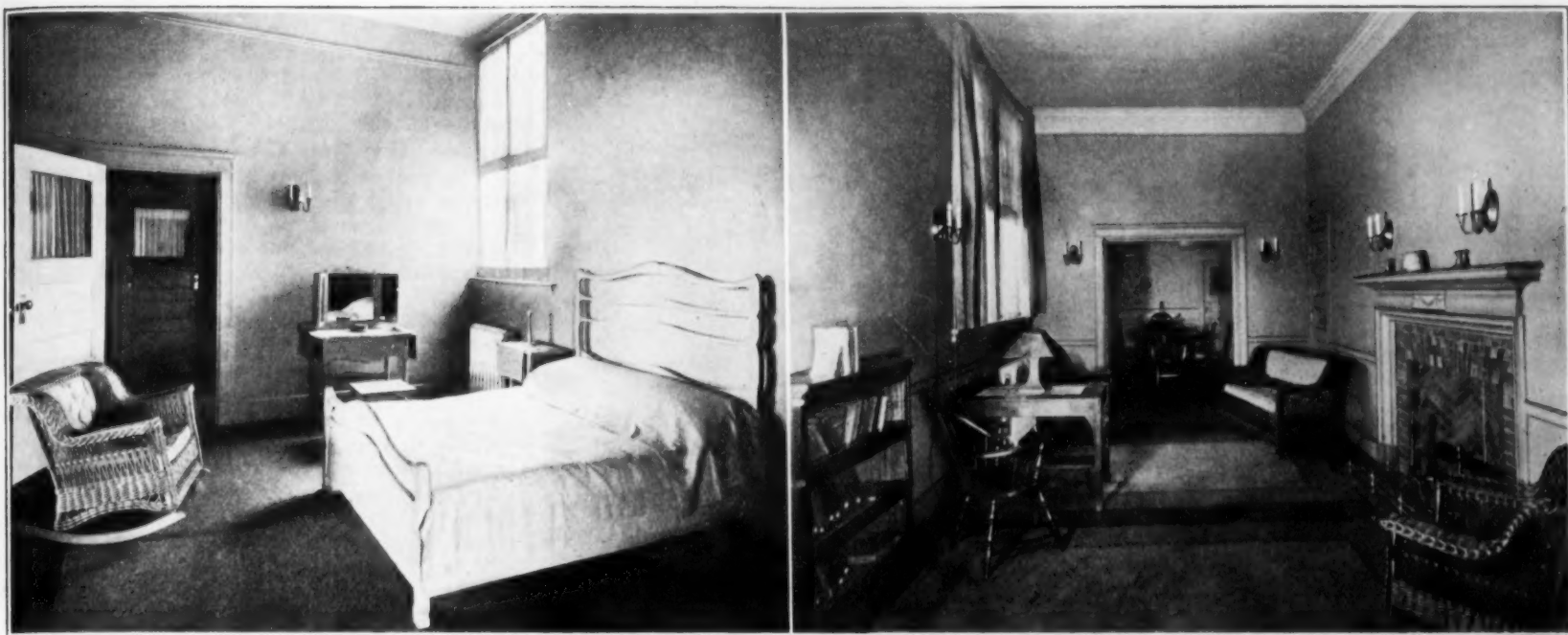
Mr. Brady has worked for some years on the basis that the cost of heating per cubic foot is the only method of obtaining concrete facts for comparative purposes. He has accordingly presented to the board each year, a tabulated statement of the fuel costs not only in the totals represented by each building but also on the basis of the cubic content of the respective buildings. His report for 1916-17 further groups the schools according to their relative expensiveness in heating and according to the type of heating plant installed.

The Kansas City school plant includes 88 buildings of which two, the Public Library and the School Repair Shop, are not used for strictly school purposes. The total cost of fuel during the past year was \$100,574.55 and the total cubic contents of all the buildings was 32,302,426 cubic feet, or an average of 3.1 mills per cubic foot.

The average cost of coal in Kansas City during 1916-17 was \$6.50 per ton. To obviate the smoke nuisance a semi-anthracite coal is used in the thickly settled parts of the city and bituminous coal is used in the outskirts and suburbs. A large number of buildings are equipped for using fuel oil which is readily accessible from the Oklahoma and Texas fields which, according to Mr.

(Continued on Page 48)





BEDROOM AND LIVING ROOM OF MODEL APARTMENT, HIGH SCHOOL, EAST ORANGE, N. J.

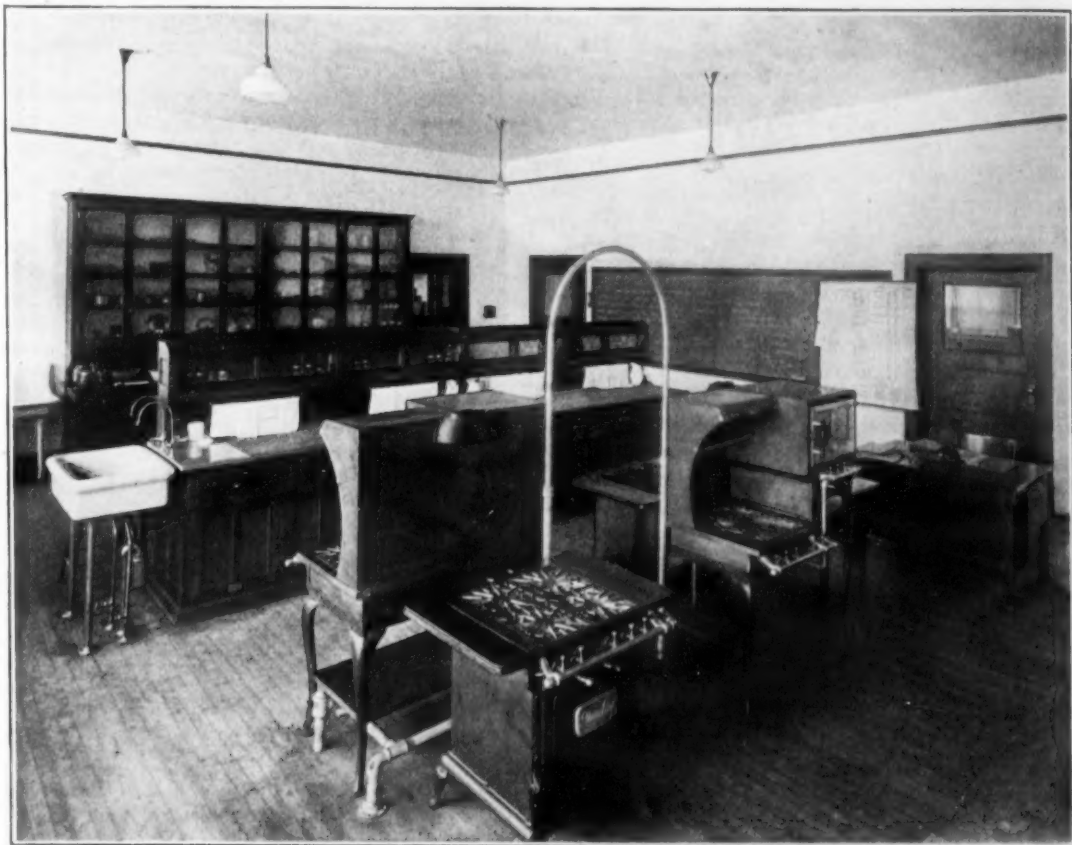
## A Model Cooking and Household Arts Department

James O. Betelle, of the Firm of Guilbert and Betelle, Newark, N. J.

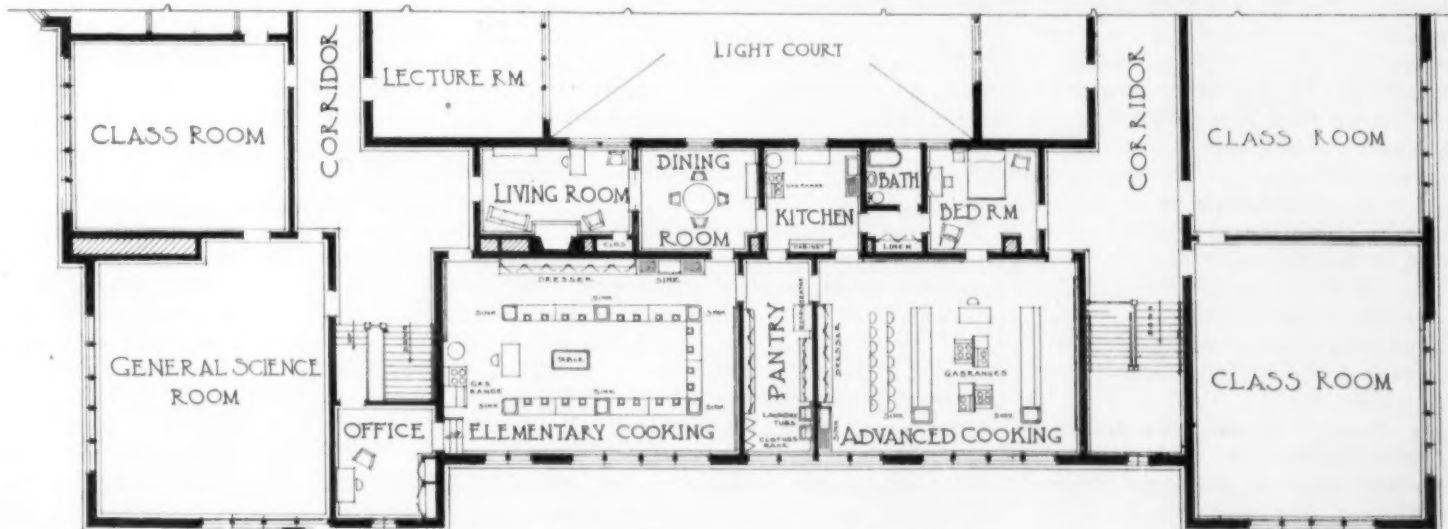
A maximum of usefulness and a minimum of space are the two leading ideas which have been worked out in the very complete and compact cooking and household arts department of the high school at East Orange, N. J.

The department includes an elementary cooking room 25 by 38 feet in size and arranged for the younger pupils. In this room the pupils are made especially familiar with the principles of simple cooking and emphasis in teaching is placed on "methods." The room is arranged to accommodate 24 pupils and the tables constitute a hollow square with small gas stoves mounted on the table tops. The pupils all cook individually and the work is confined largely to the preparation of small experimental portions. In the case of baking, bread, and other articles are baked in a large gas range oven instead of small individual ovens such as were formerly used in this type of department.

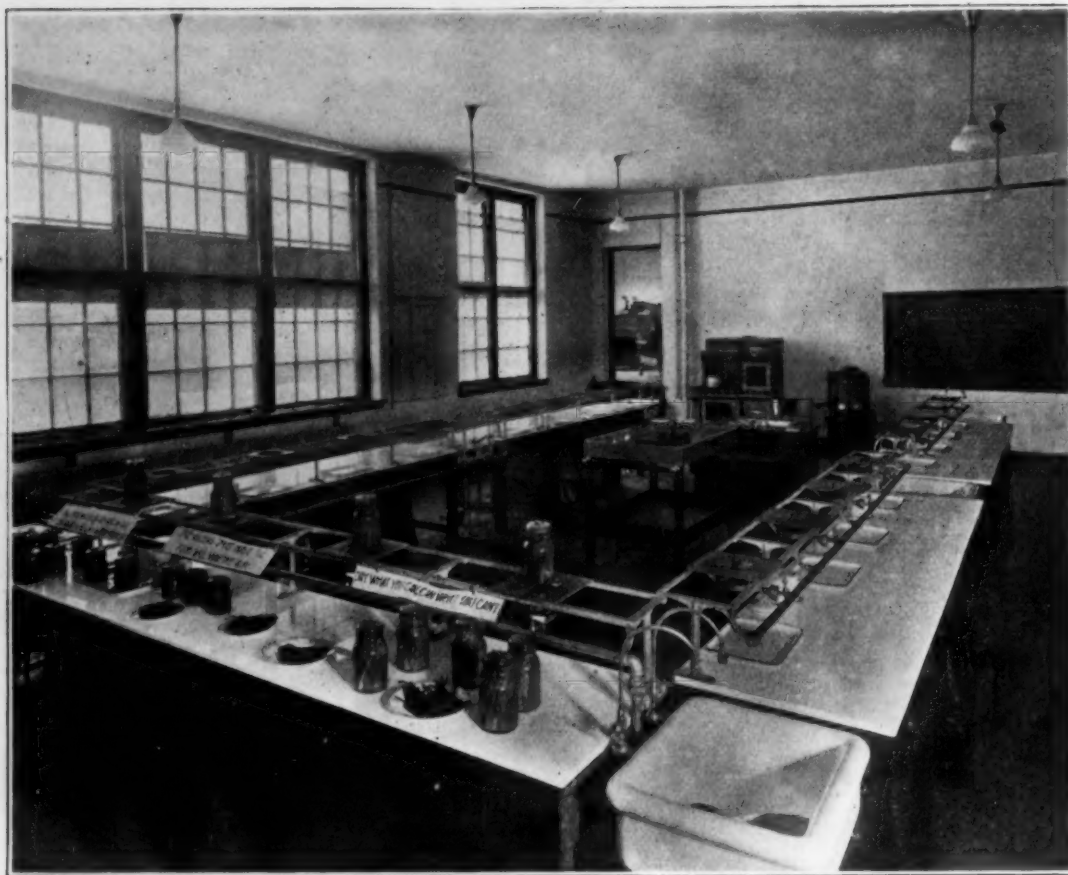
The advanced cooking room adjoins the elementary cooking room. It measures 25 by 34 feet in size and the teaching emphasizes "results." Cooking here is done in quantity portions of family size, and to keep down the expense a great deal of the food cooked is used in the school lunch room where a sufficient charge is made to cover the cost. The room is fitted up with family size ranges of the best type. Some of the stoves have ovens above and others have ovens below so that the advantages of the individual types are brought out. In addition to gas ranges, a complete equipment of tables,



Advanced Cooking Room, High School, East Orange, N. J.



PLAN OF HOUSEHOLD ARTS DEPARTMENT, HIGH SCHOOL, EAST ORANGE, N. J.  
Guilbert & Betelle, Architects, Newark, N. J.



Elementary Cooking Room, High School, East Orange, N. J.

sinks, dishes and utensils is provided including a large size fireless cooker. Thruout, the equipment is that used in the best homes so that home conditions are approximated and home methods may be taught.

Adjoining the cooking laboratories and occupying the space used for the corridor on the other floors of the building is located the model apartment. It consists of a complete living room, a dining room, a kitchen, a bath and a bedroom. The rooms are fitted with very attractive furniture most of which was designed and made by the boys in the manual arts department. The suite is in fact an apartment in which any small family may live comfortably.

As a finishing course in cooking and housekeeping and as a reward of merit, the pupils are permitted to use the kitchen of the department which is an exact reproduction of a home kitchen. Here they prepare one or two meals which they serve in the model dining room to the faculty of the school or to a party of friends and parents. The girls are given full responsibility for the preparation and serving of the food. Each one is assigned a particular duty and needless to say the responsibilities are met squarely and discharged with credit.

Between the elementary and advanced cooking rooms is located a pantry and store room. It is fitted with dressers, with sink, a large icebox, laundry tubs and drying racks.

Many schools have complete laundry equipment in separate rooms. This is very desirable provided the students have sufficient time to undertake laundry work and to accomplish something worth while. Every girl should know the principles of laundry work and should understand that the proper cleansing of clothes involves definite processes in washing, bleaching, drying and ironing so as to render the articles sterile. At least the entire school day is required for proper demonstrations and the usual period of one and one-half hours devoted to this work simply permits an article to be washed and does not allow time for drying, starching or any of the other necessary processes.

In the East Orange High School the large lunch room which seats more than three hundred pupils at one time is under the supervision of the director of the cooking and household arts departments. This arrangement is very desirable especially since some of the materials prepared by the pupils in the cooking department are placed on sale in the lunch room. If the two departments were separate the full benefit could not be obtained from the products of the cooking classes as quite naturally jealousies would arise between the two departments.

The model apartment is also used in the teaching of regular courses in housekeeping. The advanced pupils are required to use the living room and the other conveniences and are permitted at times to entertain their friends, to serve tea and to hold small receptions.

Since the photograph of the bedroom was taken the furniture has been changed and the room is now fitted up as a hospital room with a standard hospital bed and other hospital fittings. The girls who take the course are here given instruction in home sanitation and hygiene. This is especially appropriate in view of our participation in the war and the probable return of invalid and crippled soldiers. The bathroom adjoining the bedroom is used for the teaching of sanitary methods, the use of disinfectants, etc. The office of the director has been placed in a separate room at the head of the stairs. It is elevated a few steps above the adjoining room.

In actual practice the department has proven to be very satisfactory. It is astonishing how many homes are reached and what conditions are improved thru the practical laboratory work which is possible in a department of this kind.

## Cheapening the Cost of Ventilating Schools

Harold L. Alt, M. E., Brooklyn, N. Y.

The ever increasing price of building construction and operation is causing deep concern to more than a few boards of education; how to give equivalent service at a reasonable cost is today a more important problem than ever before; conservation and efficiency are the watchwords of the hour. Therefore, any suggestion as to buildings which will help reduce cost either of erection or operation is to be carefully considered and the value of the service received should be carefully weighed before a decision is reached. Substitution of an inferior plan or of inferior materials are often poor economy in the long run and only changes giving equal efficiency of operation, permanency of existence and cheaper first cost can economically be adopted.

Such a desirable change or substitution seems to be embodied in the proposal to use tile sewer pipe in the place of the galvanized iron ducts so frequently installed in the basement of modern schoolhouses for the purpose of carrying the air from the fan room to the various vertical flues leading to the classrooms.

It has been almost invariably the previous practice to use galvanized iron ducts for such purposes composed either of one large "trunk line" duct, a "double" duct or smaller "individ-

ual" ducts—one for each vertical flue. In 1914 at about the time of the beginning of the European War such galvanized iron work cost, erected, in the neighborhood of \$0.09 per pound, while today the cost fluctuates from \$0.25 to \$0.30 per pound or an increase of about three hundred per cent. Even at that the material in many localities is very scarce and can only be procured after long waits and tedious delays.

So far, the price of tile pipe has increased but slightly, and it never *was* very costly. Added to this is the permanency of the vitrified clay product, and the fact that it is easily procurable in almost any section of the country. It is a standard product and is universally in use for sewer and drainage work.

For those not familiar with the clay pipe product an outline of the process of manufacture may prove interesting and will demonstrate the permanency of the resulting vitrified tile. The pipe is manufactured from a clay base which is obtained by stripping the loam off of the clay bed, by drifting into the side of a hill or by sinking a shaft to the clay bed level and mining it, hoisting it to the surface.

The natural clay in lumps is then pulverized and hoisted to a height of 40 or 45 feet and

thrown onto inclined screens thru which the dust falls into a bin while the larger particles are returned to the pulverizers for re-crushing. From the bin the dust is taken to a moistening pan, where water is added to it until a mixture of a putty-like consistency is produced. This mass is again elevated and is carried to a clay cylinder attached to a steam press. Steam is then turned on and the clay is forced out thru the die, thus forming it into the standard pipe shape.

The lengths are made two feet, two-and-a-half feet and three feet long according to the diameters and these lengths are then taken to a drying floor where they are heated to the proper degree and remain for from four to six days until they become hard enough to handle.

The pipes are then placed in firing kilns. Some of the kilns are as large as 30 or 40 feet in diameter and the temperature is gradually raised to 2300 to 2500° Fahr. At this temperature the clay vitrifies and is ready for the glazing which is produced by throwing salt into the kiln fires. The salt fumes pass into the kiln the sodium gas, combining with the molten silica, form glass thus producing a glaze on the surface of the pipes. The kiln is then allowed



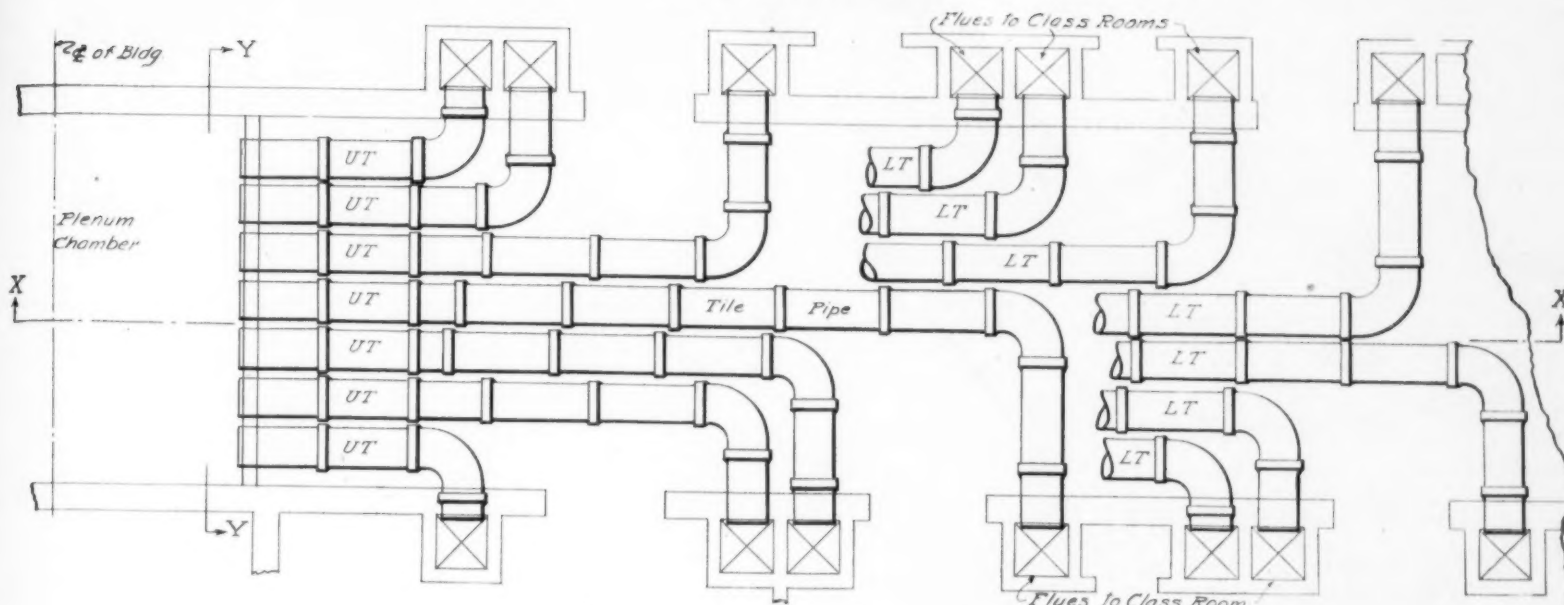


Fig. 1.

to gradually cool for four or five days and at the end of that time has produced pipe of a material absolutely impervious and indestructible.

Of course, vitrified tile is not applicable to a trunk line or double duct system of ventilating but for individual ducts it has several advantages. To illustrate such a system Fig. 1 has been developed. This shows a half plan of a typical school basement corridor. In the middle of the corridor a plenum chamber is built and from this central chamber the pipe lines run along the corridor in both directions.

The round tile pipes occupy more width (for the same area) than square or oblong pipes so that, in almost every building, it will be necessary to have two tiers of pipes one arranged above the other. Those in the upper tier, in Fig. 1, are marked U. T. and those in the lower tier, L. T.; the lower tier has been broken off

lower tier to the lower cold air chamber. To connect the automatic mixing dampers to each other, either the rods must be run thru a hole in the slab dividing the cold air from the hot air chambers or the use of the crank set on a  $\frac{3}{4}$  inch bolt as shown in "Elevation X-X" is necessary. This bolt is inserted thru two one inch holes drilled thru the tile pipe and has a nut on each end to hold it in position.

To avoid the use of galvanized iron in the vertical flues these may be built of terra cotta blocks, or even of plaster blocks. But care must be taken to make the blocks as smooth and as tight as possible. This is no novelty. Masonry flues have been used in school work for many years, and while not as smooth and tight as galvanized iron they undoubtedly serve their purpose.

The method of connecting the tile pipes to the bottom of the flues may consist of simply opening the pipe into the base of the flue as shown

on the plan, Fig. 1, and in the section, Fig. 4, or the tile pipe may be extended up above the basement floor level from an elbow below as shown in Fig. 5. There is more than one advantage in the arrangement shown in Fig. 5, as it not only makes less air friction, eliminates deep foundations under the tile flues, but also permits a complete laying of the basement floor before the tile flues are built—if such a procedure should happen to prove desirable.

In Section Y-Y, Fig. 3, the heaters and fan are shown set up on the basement level. This method avoids extra excavation and keeps the heaters as high as possible above the boiler water line. There is no objection—if the conditions in a building permit—to setting the fan and heaters on the same level as the hot and cold air chambers, blowing the air directly into these chambers. In fact, so far as the handling of the air is concerned this would even be an improvement.

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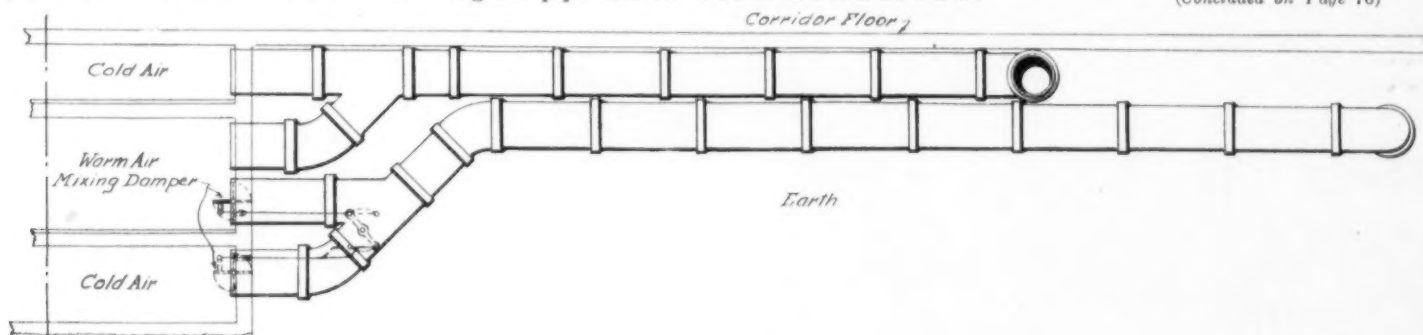


Fig. 2. Section X-X.

at the point where the upper tier begins in order to show the upper tier fully.

The use of two tiers produces a variation of the design of the central chamber. It is necessary to divide the chamber horizontally by two floors as shown in the elevation or line X-X, Fig. 2, and section on line Y-Y, Fig. 3.

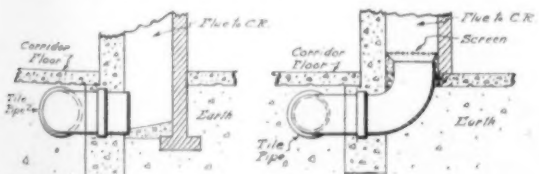


Fig. 4.

Fig. 5.

Connections to Masonry Flues.

Into the middle chamber hot air at about 90° is blown while the top and bottom chambers contain cold air at about 55°. It is necessary, of course, for each tile pipe to have a connection to the hot air chamber and to one cold air chamber. As shown, the upper tier pipes are connected to the upper cold air chamber and the

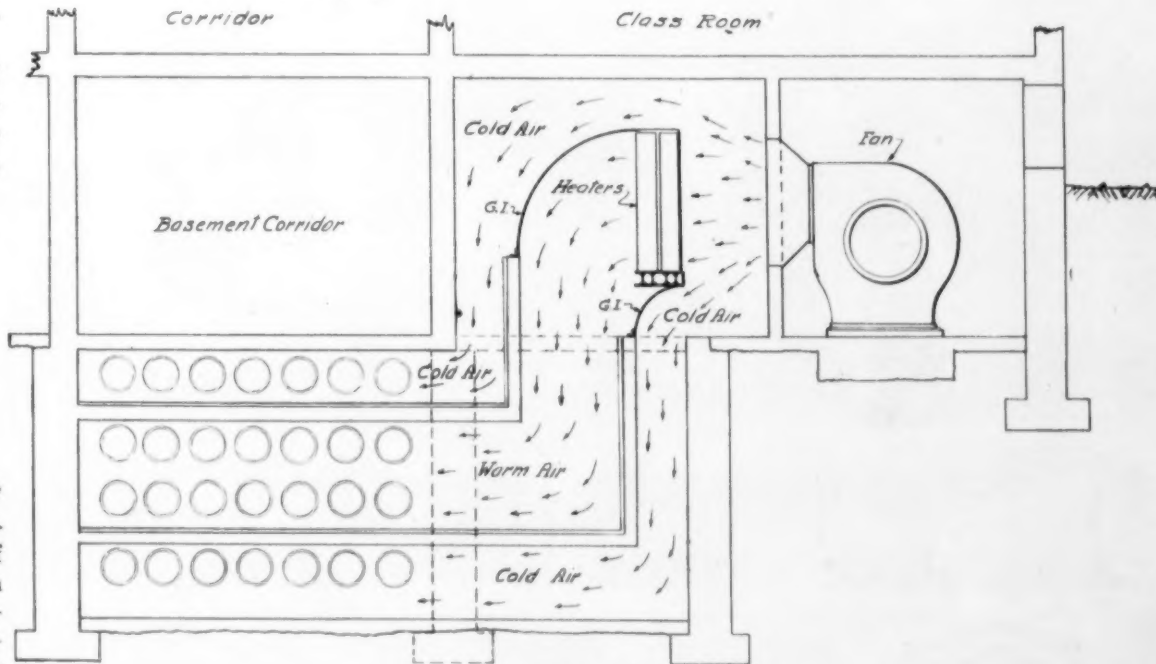


Fig. 3. Section Y-Y.

# THE ADVANTAGES OF CONCRETE FOR SCHOOLHOUSE CONSTRUCTION

Harvey Whipple and C. D. Gilbert\*

America is very badly housed. Its housing makes pretensions; a good deal of it is dressed up with some fastidiousness but the substance to an almost alarming extent is shoddy. American building has been to *look*, not to *last* well. America is built for the most part as tho its people held a lease of the place for but a generation, at the end of which they would seek a new location and leave everything behind, except for such spare change as they might like to jingle in their pockets.

Of course that is emphatically not America's mental attitude, yet we are in something the same uncomfortable situation as a growing boy to whose parents it seems unjustifiable extravagance to buy him good clothes when they are so quickly outgrown. Probably very few men build houses for themselves entertaining a settled idea that those houses, those homes will be homesteads. Most houses are built for the time being—"because the year after next I shall build a much finer place." America is hopeful, restless and improvident, skirmishing bravely and optimistically upon the frontiers of achievement and refusing to settle down to the business of occupying the country. It is that quality of the optimist, wrapped up in tomorrow's successes, rather heedless of today's responsibilities; suffering a makeshift which we cheerfully hope to replace with something better—it is that trait of the pioneer and the frontiersman which is uppermost in America—which was uppermost until yesterday, for American industry at least has now seen the light.

The results of the former state of mind we still have with us; with the greater number undoubtedly we have still that state of mind itself, from force of habit. That we have the results, an object lesson in wastefulness, there is abundant evidence. It is thus that America, in most of the aspects of its life, is badly housed. It is thus that fire losses in the United States in 1916 were \$208,705,340, or about \$2.10 per capita, while those in Europe, before the war, were from 80 per cent to 95 per cent less.

In Europe a fire is little short of a crime; in the United States scarcely more than an inconvenience.

Still referring to housing in a broad sense the best housed institutions in America are industrial in nature. As the farmer almost invariably sees to it that his stock and his crops are pretentiously housed before he rebuilds or replaces his family dwelling, so too the industrial activities of the nation are being put beyond the menace of fire, beyond the reproach

of casualness, waste and impermanence, while most of the nation's institutions of learning are yet unprepared against that menace, and are still blackened by those reproaches.

"In the United States a fire occurs *every day* in some school," says the National Fire Protection Association. "In the first 68 days of 1915, 73 fires are reported by *Safety Engineering* in public and private schools and other educational institutions. The direct fire loss was several hundred thousand dollars. Are schools being properly constructed and equipped with the best protection against fire? A careful study of conditions shows they are not. \* \* \* Some of these schools are practically tenant manufacturing properties. \* \* \* The American people have given less thought to the protection of schools and their precious contents than has been given to manufacturing plants and buildings in general. \* \* \* Altho many serious fires have occurred in schoolhouses, the fact that most of them have happened at an hour when the school was not in session, largely explains why only one notable holocaust has taken place. This was at the Lakeview school, Collinwood, Ohio, on March 4, 1908. \* \* \* 173 children and two teachers were burned to death. \* \* \* The Collinwood school was constructed of brick with wooden floors and partitions."

Further we read in the same report of the Fire Protection Association: "The Collinwood tragedy was not the result of unusual carelessness or construction. It could be repeated today in every state in the Union."

And this: "One would expect that such a terrible catastrophe would have awakened the nation to the dangers in schools, but it did not produce any such good result. Within six months after the Collinwood fire a school committee in Ohio handed to the inspectors for approval, plans for a building which were almost a duplicate of the Collinwood school. Only last year (1914) Tacoma, Washington, built a new high school designed to accommodate 1,500 students, at a cost of \$400,000 which was such a very good advertisement for the lumber dealers that during building operations the large bill board (which the Association bulletin illustrated from a photograph) was placed in front of it." The text of the bill board was to the effect that the Lincoln Park High School, shown in a big picture on the board, "will contain more lumber than any other building in Tacoma—nearly two million feet."

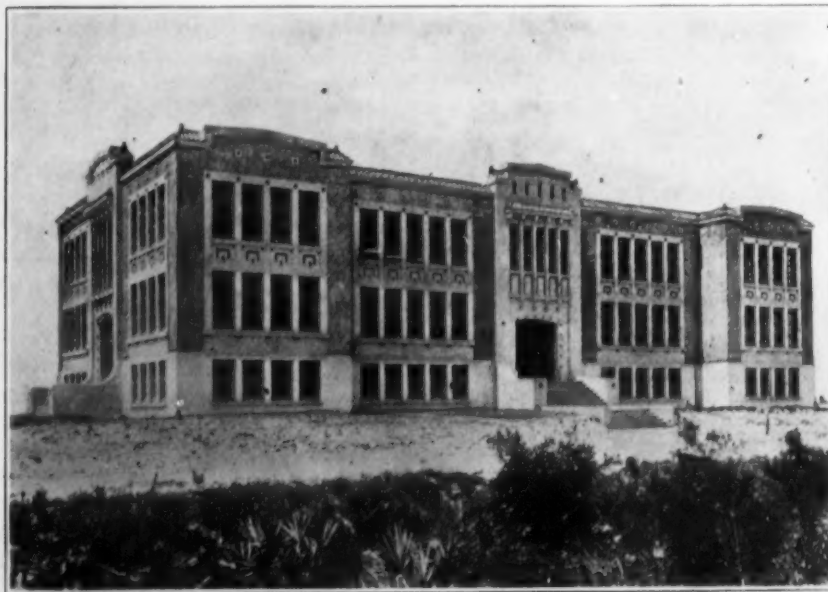
Just one more quotation and we shall have a suitable background against which to consider the advantages of concrete construction for school buildings. The bulletin shows a striking

picture of a big Wellesley College building, the morning after a fire, "the main hallway a gigantic flue" between the brick walls. The quotation is credited to the Wisconsin Industrial Commission and is this: "There are only two classes of buildings where attendance is involuntary—schools and jails. If the house or flat in which you live is a fire-trap, you can move out. If you believe a certain hotel or theater is unsafe, you need not patronize it. But if your school is in daily danger of becoming a fiery furnace the law compels your children to attend just the same."

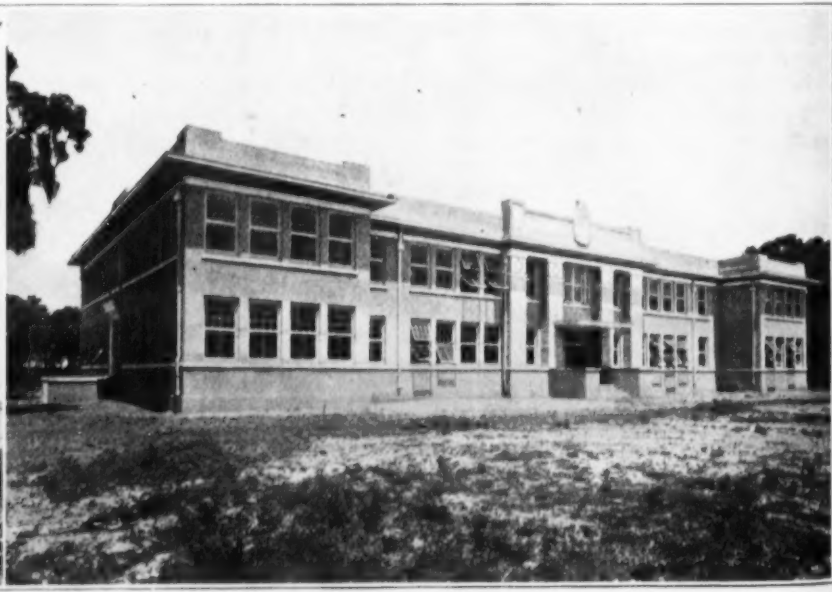
Concrete offers the same advantages as a structural material for school buildings as have already resulted in its widespread adoption for the construction of buildings for industrial purposes. In a single year immediately preceding the entrance of this country into the world war, one construction company erected nearly \$10,000,000 worth of reinforced concrete buildings, a total of seventy separate structures, housing no less than 67 different industrial enterprises and 41 per cent of all the work was in repeat orders from industrial enterprises having previous experience with this construction company's concrete buildings.

It would be presumption indeed to gainsay the plainly expressed wisdom of our hard-headed industrial leaders. They have considered this thing from every angle of its bearing upon possible hazards to their business welfare. Let us for the moment put aside all sentiment, all our higher ideals, all the tender sentiments which are properly associated with any consideration of school building construction, and sum up only those considerations which have strongly influenced the industrial world in its plainly growing preference for concrete. It is proposed to establish the fact that what has frequently been a striving for economy was many times not founded upon economy but upon a temporary expediency. Many school authorities will concede that the policy that has often governed has been a pennywise policy, and that in the light of courses that are now open to the builders of schools, the policy frequently followed was not even pennywise.

Any one reading what is here set down will concede that the first consideration is that a school building shall provide maximum safety for its precious contents. First of all we consider the possibility of fire. It is generally understood nowadays that there is no such thing as an absolutely fireproof building. All the structural materials yield to fire when the heat is great enough and of sufficient duration. It comes down to the necessity of choosing that



SCHOOL AT DAYTONA BEACH, FLORIDA.  
16 classrooms; auditorium 50 by 70 by 20 ft.; laboratory, teachers' rooms, etc.; reinforced concrete construction, curtain walls 6 in. and 8 in. thick. Cost \$47,000.



CONCRETE SCHOOL, NEW SMYRNA, FLA.  
Reinforced concrete construction; 12 classrooms. Cost \$37,500.





REINFORCED CONCRETE SCHOOL BUILDING, LIVE OAK, FLORIDA.  
18 classrooms and basement; Mark & Sheftall, Architects, Jacksonville, Florida.  
Contract price \$56,000.



EXTERIOR VIEW, LINCOLN SCHOOL, SUMMIT, N. J.  
One of the earlier examples of reinforced concrete construction for schools.

material which is the last one to yield, and then to so dispose that material and so safeguard it with auxilliary fire-stopping provisions and equipment, at the same time eliminating all possible material from whose inflammable or combustible nature, a fire menace is most apt to spring, as to realize a maximum safety. Under the worst conceivable conditions fire in a concrete building could never bring immediate disaster. It would retard flame so long that no lives ever need be lost from the early failure of the structure.

Let us turn to the industrial leader. The law usually compels him to safeguard his employees. If he has a building which subjects them to unusual dangers, either he is sooner or later prevented from utilizing it or he is put to unusual expense in providing safe-guards to offset the hazards of the building itself. Gradually he is discarding the so-called mill construction, which originated among the mills of New England and which found favor there and elsewhere for more than a generation. It involves brick walls and heavy timber framing inside. It is so-called slow burning, but is not at all fireproof. The brick-walled and wood-floored school building cannot compare even with mill construction for safety from fire, because the usual character of the framing makes it very quick burning. Mill construction is usually the cheapest (in first cost) of the types of construction open to the industrial builder, and it is the least fireproof. A frame of structural steel is usually the most expensive of all and is not fireproof unless the steel is well encased with concrete or some other material which will keep fire away

from it. How unsafe steel is in a fire it is hardly necessary to mention. The blaze from the creosoted block pavement of the bridge from the city of Detroit to its park, Belle Isle, was sufficient, before a fire department could get to work, to cause the complete wrecking of the structure—with no more fuel for the flames than the bridge pavement.

In first cost reinforced concrete construction usually comes between the mill type and the structural steel. Under favorable conditions as to material supply, concrete is cheaper than the brick and wood construction. There is a choice between the so-called flat slab and the beam and girder types of concrete construction. Various conditions influence the choice of design. The flat slab type is without doubt more fireproof because it presents fewer sharp angles. We have learned that when flames have sufficient food and a concrete member is subjected, on two sides of a sharp corner, to intense heat for a long time, the corner is likely to spall, altho failure of the structure itself is very rare. The Edison factory fire is a notable example in which the heat was of unusual intensity with results that have had a tremendous influence upon subsequent building design, not only in further emphasizing the fireproof value of concrete but in showing the advantages of round columns, instead of square, and flat slab rather than beam and girder construction—both for the purpose of eliminating sharp corners.

Of the stability and structural soundness of the well built concrete structure there can no longer be any question—the excessive overloads which such buildings have withstood, the ex-

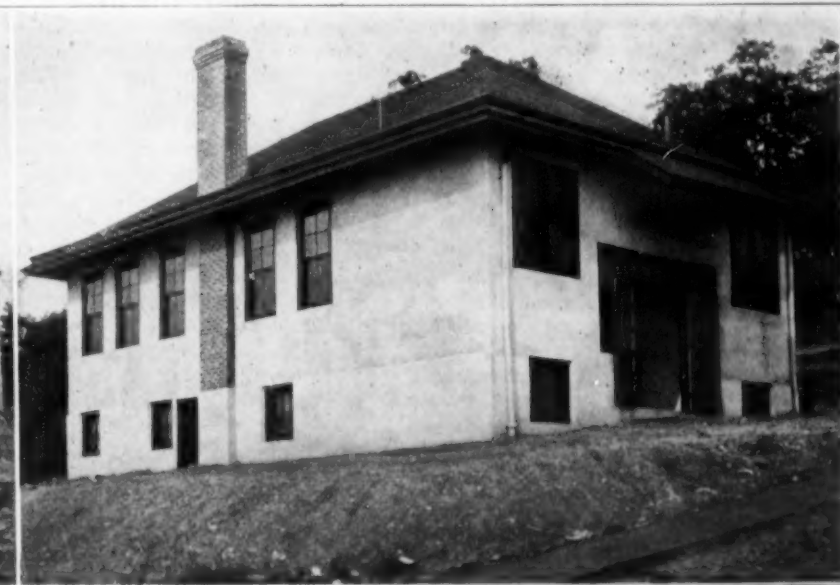
perience in the San Francisco earthquake where the only structures that withstood the shocks were those of reinforced concrete construction.

The sanitary advantages of concrete are of common knowledge; its time and weather-proofness are bywords. It is in fact quite remarkable that in the three decades since the first reinforced concrete building was erected in America, the material has met and silenced objections to its use which are now laughable when it is remembered how they were once seriously considered. The most persistent of these was the statement that concrete buildings are damp. The reason this charge was persistent is because numerous early buildings of concrete were damp. Dampness on interior surfaces of outside walls proceeds from two sources—outside and inside. The housewife who prepares a boiled dinner in the winter time knows all about one kind. The interior air being charged heavily with moisture, gives up that moisture on window panes and on walls themselves when the walls are colder than the air inside. Water does not penetrate a well-made concrete wall. Yet the best made concrete wall, if too thin, or finished inside with no means of insulation becomes cold in cold weather, just as is the case with a wall of natural stone or of brick. No one would think of plastering directly inside on a thin stone or brick wall in a cold climate.

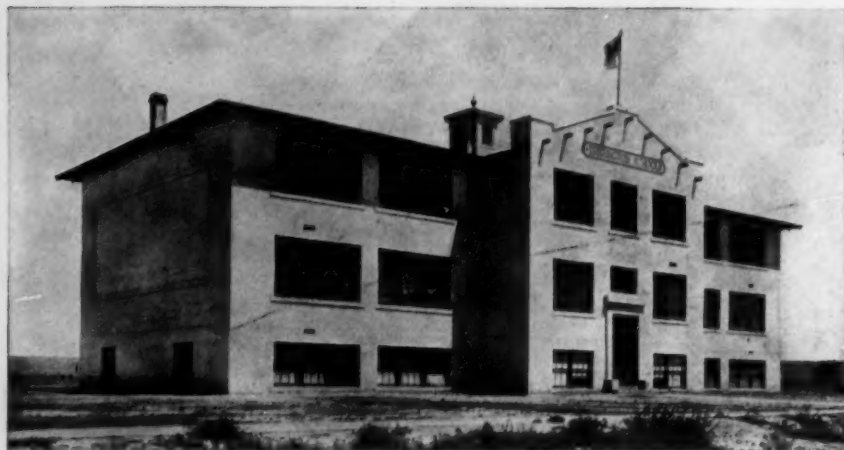
The other source of moisture is outside. Poor concrete block, made of a mealy mixture of badly proportioned materials, carelessly laid up with only half measures in sealing the joints between blocks, are held responsible for much



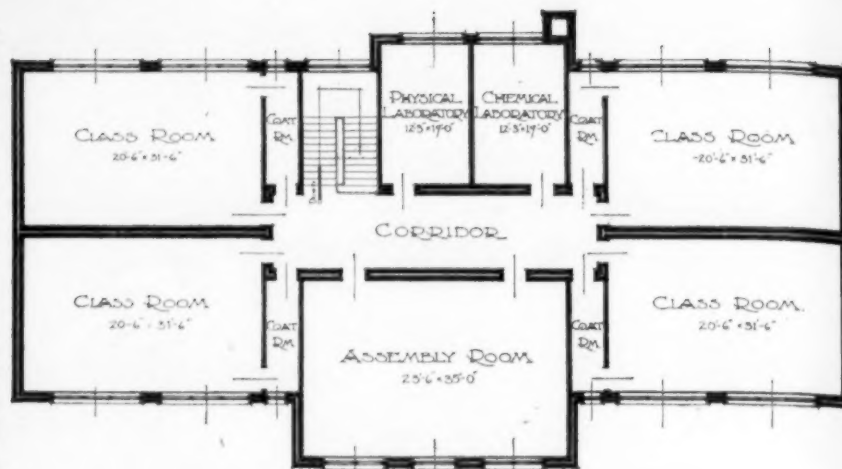
Another Concrete School in the South of 12 classrooms, laboratory, domestic science department and auditorium to seat 450; very complete and modern. Cost \$42,000.



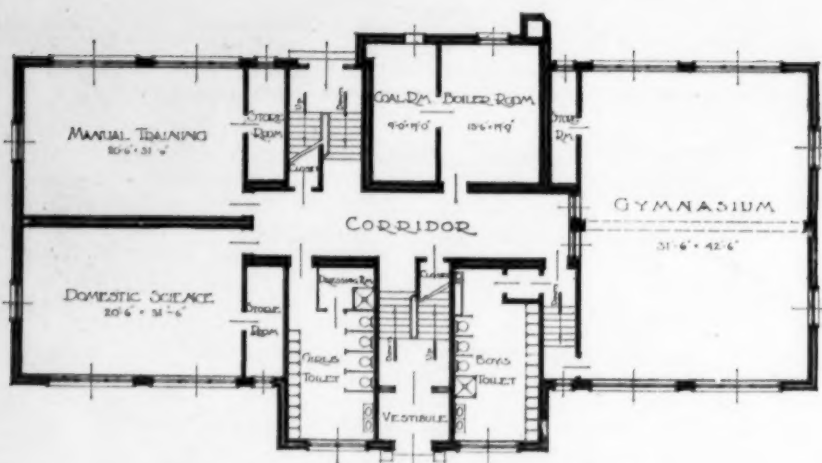
ROSLYN FARMS SCHOOL, CARNEGIE, PENNSYLVANIA.  
Walls 8 in. thick; other construction not fireproof. This is said to be the most complete rural school in Pennsylvania. It is 36 ft. by 48 ft., outside dimensions and cost \$3,000; for just a little more investment, it might have been fireproof thruout.



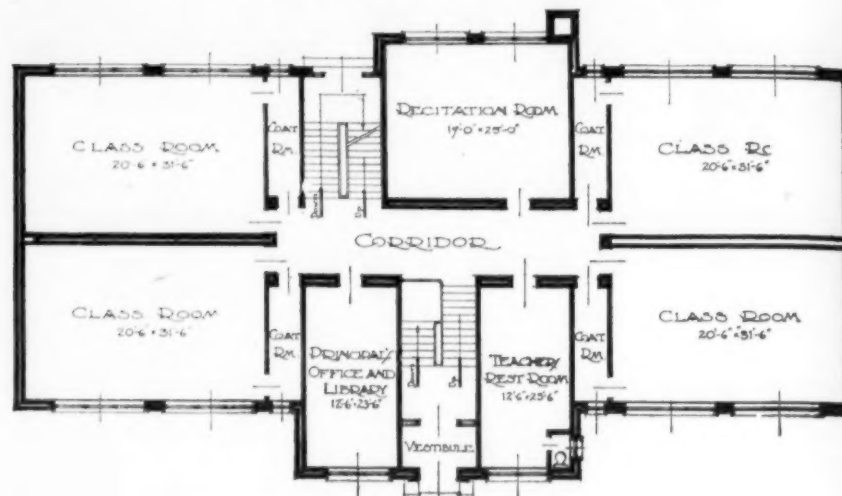
SCHOOL, TORRINGTON, WYO.



SECOND FLOOR PLAN, SCHOOL, TORRINGTON, WYO.



BASEMENT PLAN, SCHOOL, TORRINGTON, WYO.



FIRST FLOOR PLAN, SCHOOL, TORRINGTON, WYO.

## DOUBLE WALL CONCRETE SCHOOLHOUSE AT TORRINGTON, WYOMING.

The building is 111 ft. x 45 ft. in plan, exclusive of front and rear entrance projections; basement provides gymnasium, shower bath and dressing rooms, boiler room, and manual training and domestic science departments; first floor, four classrooms, recitation room, office and rest room and library; second floor, assembly room, four classrooms and physical and chemical laboratories.

The walls are of concrete, 1:2:4 mix using local gravel and sand; footings are 3 ft. 6 in. wide, 7½ in. deep, reinforced; wall machines were used by which two walls separated by a 2½ in. air space are molded 9 in. high and 5 ft. long at each operation; basement walls are in two 6 in. sections, separated by air space; first story, two 5 in. walls; second story, two 4 in. walls. Stucco was applied outside for a finished surface, and plaster inside. Floors are of pressed steel joists with ribbed metal lath covering and 2 in. concrete finish, using a commercial floor hardener. Ceilings are similarly finished, as a means of fireproofing the steel joists. The roof is of wood frame but is shut off by the fireproofed second floor ceiling. Partitions are of cement plaster on ribbed metal lath 2 in. thick. Very little wood trim was used. As the building is isolated wood window frames and sash are used instead of steel. The building has a complete direct-indirect heating and ventilating system. It was erected in 1915 from plans by W. N. Bowman, Architect, Denver, Colorado. The reinforced concrete walls cost \$7 per cu. yd. net; all floors, including pressed steel joists and metal fabric, \$1.45 per sq. ft. of building (not per sq. ft. of floor); second floor ceiling \$1.35 per sq. yd. of ceiling; partition lath and plaster, cost \$0.97 per sq. yd. Total cost, about \$25,000. The accompanying data are taken from "Concrete."

early criticism of damp concrete walls. Good concrete is synthetic stone. Its ingredients, as to kind and proportions and subsequent methods of mixing and placing, involve a necessity for intelligent consideration. It is not remarkable that anything so simple, from a superficial examination, as mixing cement and water and gravel or crushed stone, should have been abused in ignorant hands.

Concrete construction is now well standardized. Its fabrication is pretty generally understood. Large construction companies specialize in its use and more and more of them are constantly doing so. Architects, whose allegiance to traditional materials and methods, once caused them to shun the study of the application of the usurping material, are now feeling some sympathy with its use. They are studying its peculiar qualities and adaptations, so that now we have plenty of examples of the fact that concrete is not only structurally sound, but in intelligent hands, architecturally beautiful.

An important consideration in school building construction is that of lighting. Here again we may turn to the industrial building, where efficiency has an immediate money value. With reinforced concrete larger window areas are possible than were to be had in the types of construction which are being discarded in favor of concrete. Some concrete factories have window areas equal to 85 per cent of the total wall area. It is not necessary to point out to those familiar at all with school requirements just what an advantage this is.

Returning to the matter of cost. It was stated rather conservatively that concrete construction is usually between the cost of brick and wood construction and structural steel

frame. As a matter of fact, there are numerous instances of the construction of concrete in which the work was in charge of men familiar with it, where the cost for an all concrete building, a building as near to being firesafe as it is probably humanly possible to build, actually cost less than brick and wood construction.

In a paper by John T. Simpson before the American Concrete Institute in December, 1910, there are references to some of the earliest examples of concrete school building construction. Mr. Simpson said: "The board of education at Irvington, N. J., a few weeks after the Collinwood fire, brought out plans for the erection of a four classroom building. The original design called for typical brick walls with wood floor construction. When the bids were received it was found that this building could be duplicated in reinforced concrete for \$300 less than the best price received on the basis of brick and wood, and as a result, to the town of Irvington, N. J., must be given the credit of being the first to adopt this type of construction for public schools in this section of the country. The building proved so satisfactory that they adopted this method of construction for all new schoolhouses."

"While this building was in progress of construction, the board of education of Summit, N. J., who were planning to erect a nine classroom building, visited the work and were so well pleased with the construction that they adopted reinforced concrete for their new Lincoln school."

"The neighboring town of Chatham, N. J., a few months later, obtained bids on both brick and wood and reinforced concrete. The results of the bidding showed that a reinforced concrete building could be built for the same price

as the building of brick and wood." Some complications in connection with the appropriation and the bids resulted in the construction of the building with brick and wood. Yet the plan was duplicated in a reinforced concrete structure at Madison, N. J., in the Central Avenue school at no increase in cost. As further emphasizing the possibilities in the low cost of fireproof construction, Mr. Simpson referred to bids received for School No. 11, Bayonne, N. J., a structure with 27 classrooms, teachers' and principal's rooms, library and auditorium for 1,000 people. There are, in addition, several basement rooms. Mr. Simpson reported: "The lowest bid received on the basis of brick and wood was \$132,700. The contract for the construction was awarded on the reinforced concrete basis for \$111,000—a saving of \$21,700. All bids were without heating and plumbing."

Thus far we have been considering reinforced concrete construction comparable in size and methods with the big industrial structures being erected with framework and floors of reinforced concrete and with curtain walls which may either be of concrete or of some other fireproof material.

This by no means does the situation justice. We are reminded by Dr. Creighton Barker, of New York City Bureau of Municipal Research, writing in *The Architectural Record* that twelve million or three-fifths of the school children in the United States are attending schools in towns of less than 2,500 inhabitants and that one-half of that number, six million children receive their first and frequently their only education in the one and two-room schools scattered over the countryside.

Dr. Barker considers the progress of the country school—how it is broadening its usefulness

(Continued on Page 68)





STOCKPORT GRAMMAR SCHOOL, STOCKPORT, ENGLAND.  
Messrs. R. H. Spalding and E. G. Theakston, Architects, London, England.

## A BRITISH INTERMEDIATE SCHOOL

John Y. Dunlop, Esq., Glasgow, Scotland

An interesting type of British school is the new Stockport Grammar School, erected in 1915 at Stockport, England. The school has existed since 1487 and is in point of antiquity antedated by only two educational foundations in Great Britain.

The history of the school is interestingly told in a series of four sculptured panels above the main entrance. The first of these panels represents Sir Edmund Shaa, founder of the school who "of his bounty provided this school A. D. 1487." The second panel represents Alexander Lowe, a mercer of Stockport, who bequeathed his house and certain moneys to the foundation in 1587. The final panel shows Ephraim Hallam, mayor of Stockport, thru whose bequest the erection of the present building was made possible.

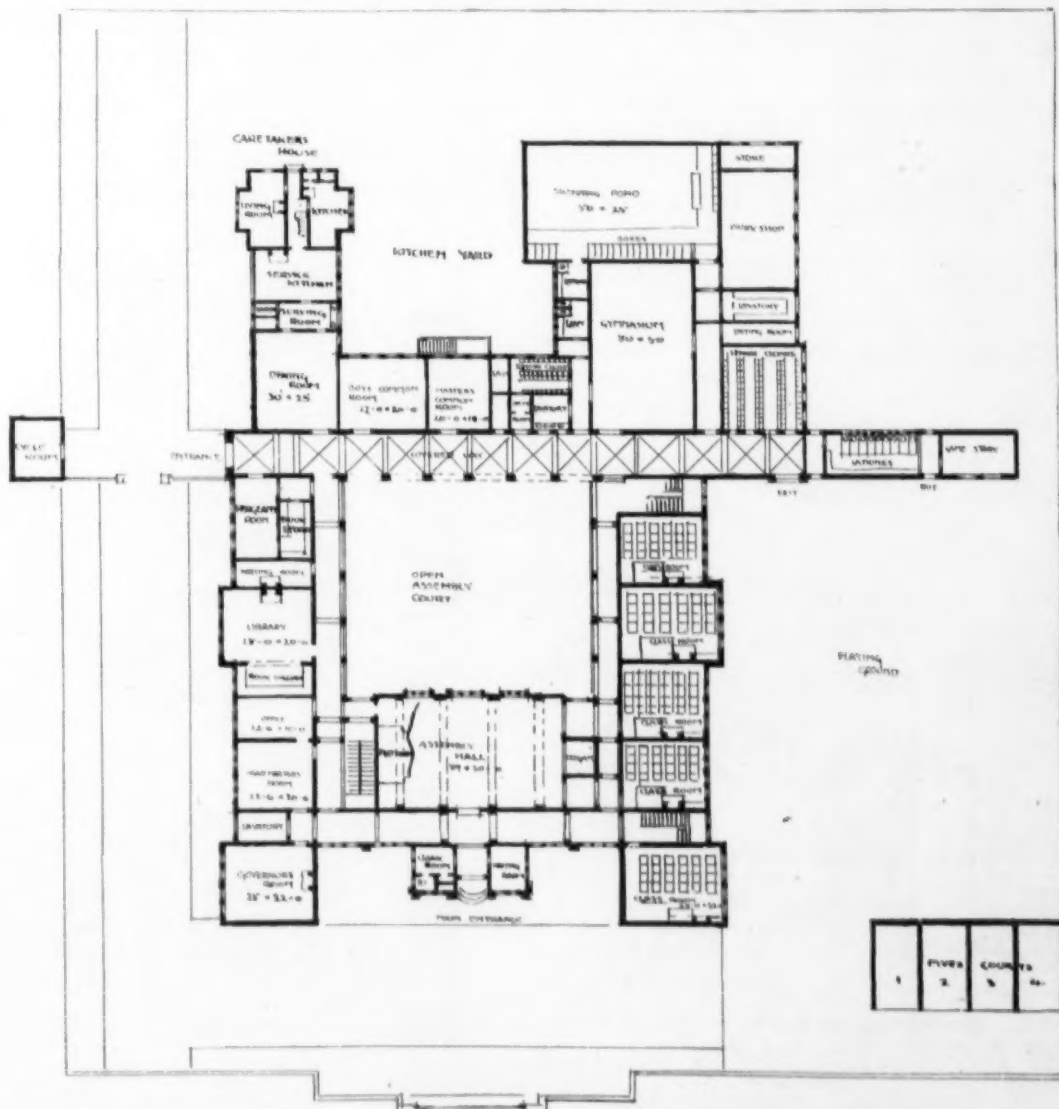
The building which is surrounded by a large playground, is in the form of a large hollow square. The main structure consists of two wings with an assembly hall and a corridor forming the connection. At the rear there are various service rooms, shops and space for the physical education department. The academic classrooms are concentrated in one wing and the administrative office, the library, the laboratories and the art room occupy the other wing.

The assembly hall which is lighted from one side is finished with plaster and oak wainscoting. The segmental ceiling and the walls are paneled and the windows are set with leaded glass. The seating is considerably increased by a gallery over the organ space and by a series of open balconies which form the second-story corridor.

The classrooms are finished according to standards varying widely from American practice. The rooms are fitted with double desks and are partly heated by means of open fireplaces. The windows are set in leaded frames with small panes arranged in geometric patterns. The leaded glass is fitted into the stone dressing to provide the greatest amount of light possible. The upper parts of the windows are made up with metal frames so that they may be opened by means of long levers fixed on the sides of the window frames.

In the administrative division of the building there is a meeting room for the board of governors, a large room for the headmaster, a

small private office and a large library. The last mentioned room is fitted with book stacks for storage purposes.



Ground Floor Plan, Stockport Grammar School, Stockport, England.



OPEN COURT SHOWING THE ASSEMBLY HALL IN THE BACKGROUND.

The physical and chemical laboratories on the second floor have connected with them a lecture theater where demonstrations and lectures are held. The lecture theater is fitted up with an easily graded gallery and with a large lecture table suitable for experimental and exhibition purposes.

In the balance room the shelving on both sides is of one and one-half inch slate and is fixed to the wall with the idea that should there be any movement in the floor that such will not affect the stability of the body in suspense.

The chemical laboratory has four ranges of tables, one along the wall and three built on the center of the floor. Each table is fitted with a series of fireclay white porcelain enameled sinks which discharge into a glass enameled waste pipe running underneath the table and thru the

floor to the outside of the building. On the top of each table is arranged the shelving for the chemical bottles and the supports for experimental apparatus.

The physical laboratory is simple in detail. The tables are of simple construction with a drawer for each student. The lecture table is at the end of the room and is fitted with water and a mercury groove for the collecting of waste of that material.

The art room which is at the extreme end of the corridor is 31 feet long and 23 feet wide. This studio is shown as one room, but is arranged so that it can be divided into two parts by a heavy curtain suspended near the ceiling.

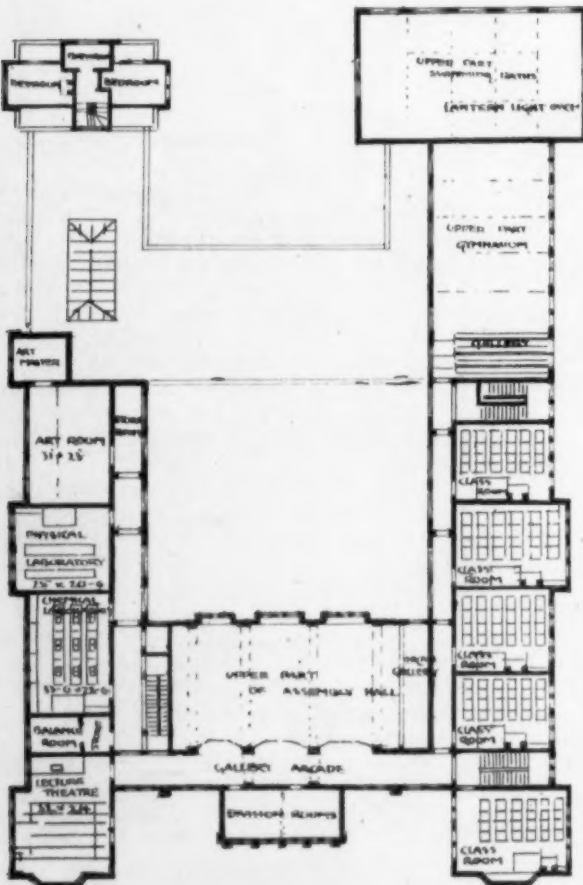
In the service department of the building there is a large dining room for boys who can-

not go to their homes for the noon meal. In connection with it there is a service kitchen and a serving room and beyond these there is a house for the caretaker.

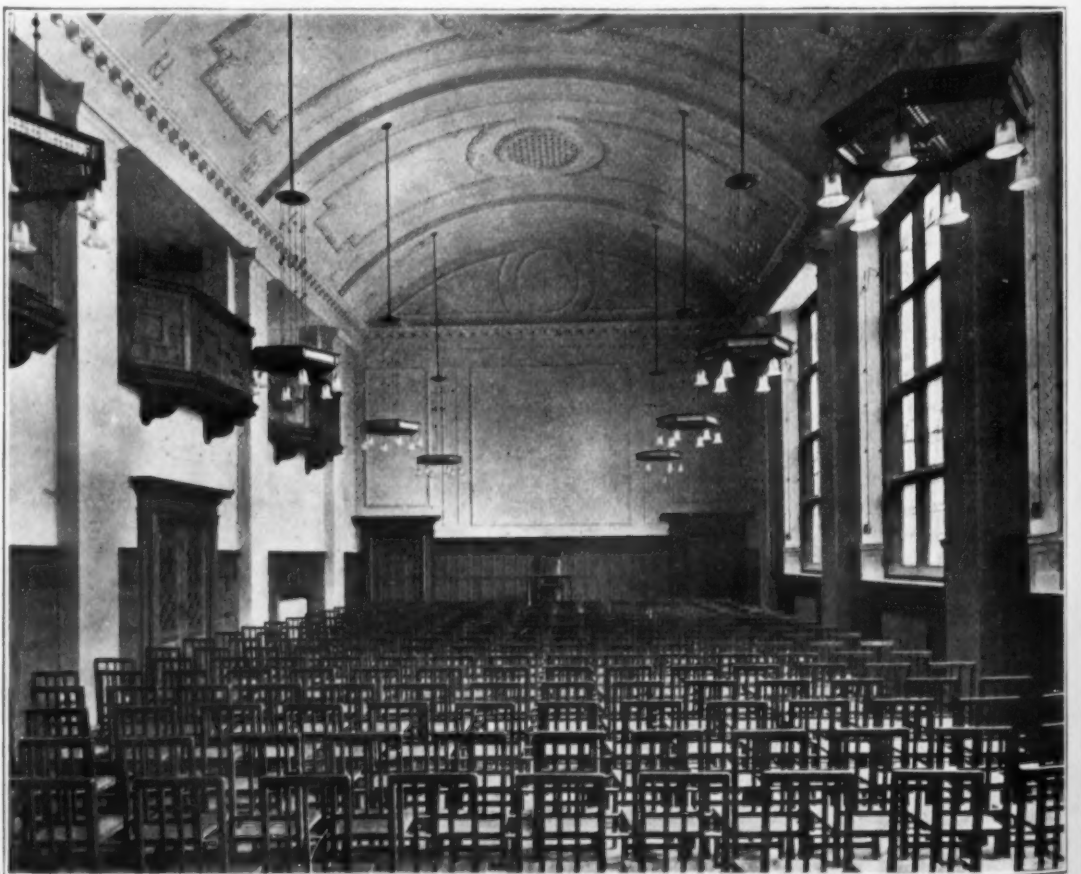
The gymnasium, swimming pool and the large workshop form a unit that completes the school building. The gymnasium is 50 feet long by 30 feet wide and is fitted up in a very complete way. Adjacent to it are lavatories and cloak rooms. Ample dressing boxes are built along two walls of the swimming pool. These fixtures are made up with wood partitions and have low doors. The workshop is completely equipped for manual training.

The school is very fully equipped for 250 students.

The caretaker's house consists of a four-room apartment, with bath and is arranged on simple domestic lines.



First Floor Plan, Stockport Grammar School.



Assembly Hall, Stockport Grammar School.



# The New Junior High School at Futuria

Pedr Price

(Third Article)

The school architect of Futuria had submitted his preliminary sketches of the new junior high school. He had also furnished a sketch showing both vertical and horizontal sections of the building. This assisted the teachers in visualizing the room arrangement. To each supervisor and vocational teacher had been sent a blue print of those parts of the building with which each one was especially concerned. The architect had told the teachers that the location of interior doors could be changed wherever that seemed desirable; that the location of exterior openings,—doors and windows, could be changed if it were absolutely necessary but that the moving of such openings always detracted from the beauty of the exterior.

On this particular afternoon these teachers and supervisors had been called together to discuss the matter of equipment.

## The Basis of Shop Arrangement.

"It perhaps will be worth while," said the principal, "for us to discuss the fundamental principles that should govern us in the selection of equipment and in the arranging of this equipment in the various rooms. I shall give you my ideas and anyone who differs may interrupt me at any point."

Three years ago I took a summer course under Dr. Dewey and the keynote of that whole course was, "Education is life—not preparation for life." Now if Dr. Dewey is right, and I am firmly convinced that he is, then our new junior high school must give its pupils real life and not an artificial substitute. For years we have compelled children to sit in uncomfortable, ill fitting desks, which seem to have been especially designed for the purpose of impeding movement. In the public library, in the home, in the business office, people study and work at tables and sit in chairs—why not in the school-room?

The average domestic science equipment is a fine illustration of the fallacy that school equipment must be something different from that used in real life. In the conventional domestic science room of ten years' ago we usually found an affair that looked like a store counter with cupboards underneath to hold the pots and pans. On top of this counter, at intervals of about three feet, were placed dinky Bunsen burners,

and on these little burners the girls were supposed to learn to cook. At some stage in the development of domestic science the military idea invaded the cooking work and the store counter was set up in the form of a hollow square. A little later the store counter was superseded by the flat top desk with the little Bunsen burner placed where the ink wells ought to be. Can you imagine the mothers of these girls getting a family meal on those flat top desks? In her mother's home and later, in her own home, the girl will prepare the food on a kitchen table and cook it on a range (coal or gas). Why not put tables and ranges in the school kitchen?

## Use Commercial Tools.

Then in the shops, let us have the boys use exactly the same tools and machines that they will later use in the factories. I imagine school men must be easy marks for not long ago a manufacturer put out a special line of school machines. To these tools were added a number of adjustments and extra attachments that were advertised as especially valuable in educational work. A special price was added also. They were given what is called an "Exposition" finish. They sold readily to school officials who were buying machines for exhibition purposes. A few years ago a machine shop equipment was installed in a high school. The engine lathes, milling machines and shapers were painted white. No doubt this was very impressive to the mothers who visited that school. The impression made upon the shop superintendents and foremen who visited that school shop, was not so favorable. To them it was one more proof that the schools merely "play with life." Now all these things we must avoid. The one question to ask yourselves when you are laying out your rooms should be, "How is it done in real life?" Today I have done all the talking but during the next ten days I want to sit down with each of you individually and let you tell me the problems that you are facing."

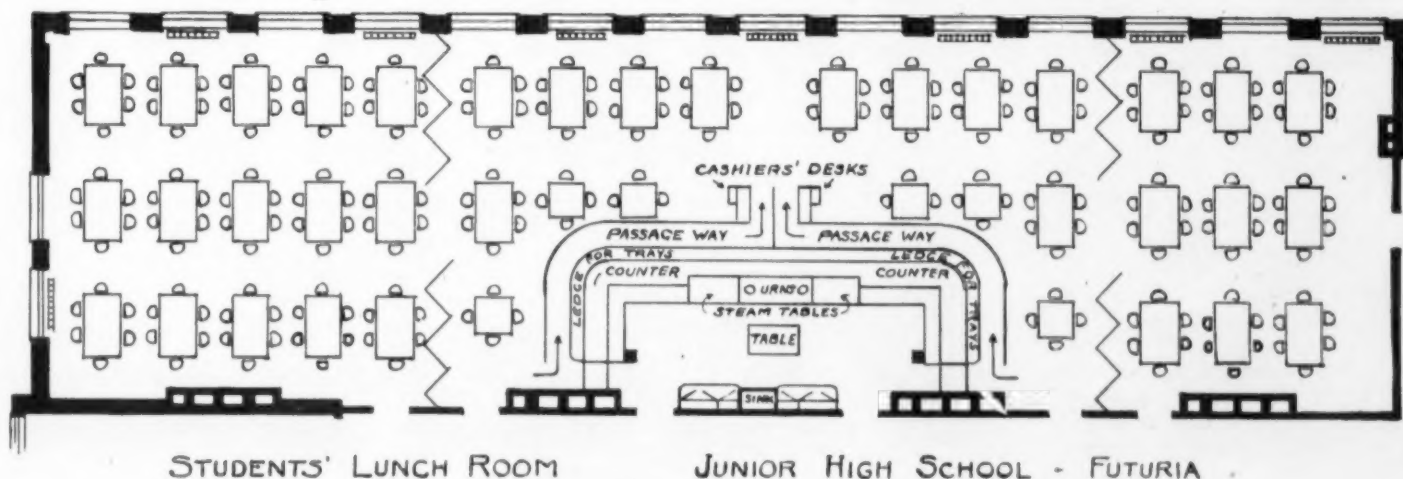
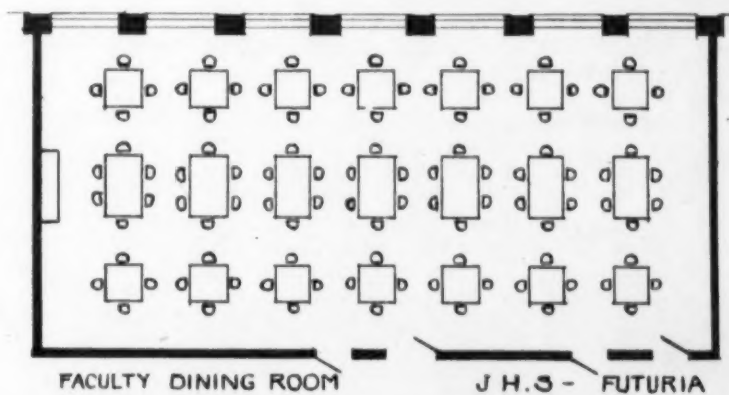
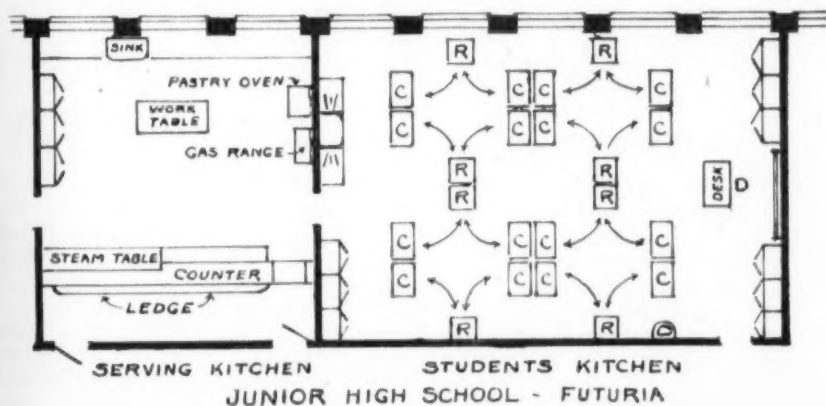
## The Cooking Room.

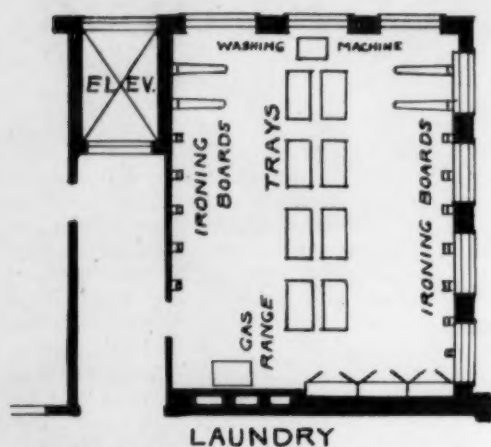
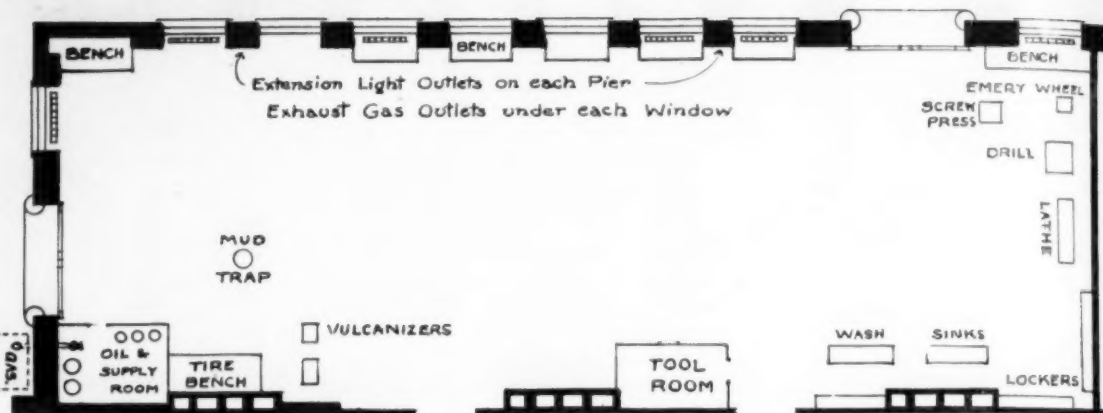
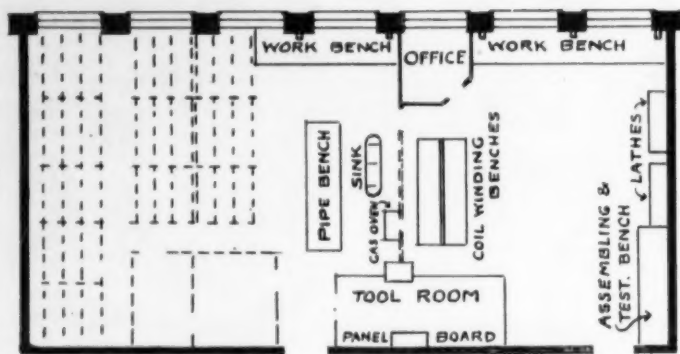
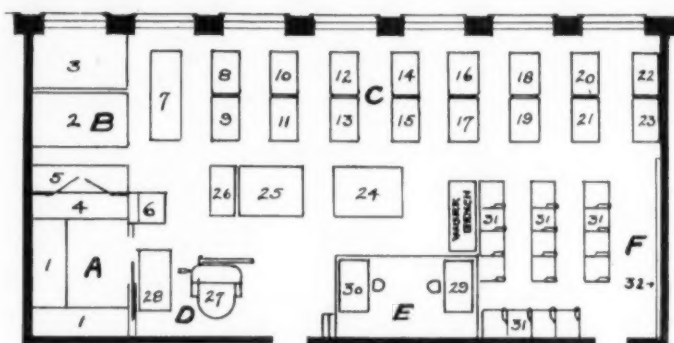
A little later the Supervisor of Domestic Science came in with her drawings. "A few days ago," said she, "I made some rough sketches which embodied the application of the

principles you gave us. These sketches were handed over to the pupils of one of our drawing classes and they are now ready to submit to you. In our school kitchens we will install the most common type of gas range but instead of having the girls work on kitchen tables I should like to give each girl a very simple kitchen cabinet. In many country homes and many city homes of today, you will find kitchen cabinets. There will be great saving in steps and an avoidance of confusion if each girl has her cooking utensils immediately at hand and is not required to go across the room for these articles. The shelves forming the upper part of the cabinet will hold the every day supplies, i. e., baking powder, salt, pepper, sugar, etc. The gas ranges are marked (R) on the sketch and the cabinets (C). The plan is to have one gas range used by two pupils and the sketch shows a convenient grouping of the cabinets to accomplish this purpose. The lines with arrow heads show the short route to be followed by each girl from the cabinet to the range. At one end of the room a sink should be installed and at both ends of the room cupboards to hold the extra cooking supplies, extra utensils and the kitchen linen.

## Where the School Eats.

As the students' lunch room is to be operated on the cafeteria plan we shall need a serving counter. The pupils will come to this counter from either side as indicated by the arrows. A ledge is shown on the counter along which the pupils may slide their trays as they pick up the various dishes. You know, of course, that dishes should be taken from the counter in the inverse order of that in which they are to be eaten. The desserts and salads should be put on the trays first and the last dishes to be taken by the pupil should be the meats, vegetables and beverages, in order that they may be as hot as possible when they reach the table. For this reason the steam tables and the urns are placed in the center of the counter and close to the cashier desks. The students will act as cashiers and will receive some valuable experience in the making of change. At the same time they will perform a useful service for the school. A sink should be placed back of the serving counter at which one of the women assistants may wash



LAUNDRY  
JUNIOR HIGH SCHOOL - FUTURIAGAS ENGINE AND AUTOMOBILE SHOP  
JUNIOR HIGH SCHOOL - FUTURIAELECTRICAL SHOP  
JHS - FUTURIAPRINT SHOP  
JUNIOR HIGH SCHOOL - FUTURIA

the glasses and silver. The plan is to have all other dishes carried in carts to the serving kitchen.

The serving kitchen has been laid out to efficiently meet the needs of the women who will be employed for the preparation of the vegetables and the washing of dishes. A pastry oven should be installed because the men on the faculty will, of course, demand pie every day and a pastry lesson cannot be given to the students every day. It will also be desirable to install a gas range for the cooking of any articles which may not be prepared by the pupils. A sink should be placed near the window and a long shelf built by the side of the sink for the reception of the dishes from the lunch rooms.

"I have always supposed," said the principal, "that a properly equipped serving kitchen should include a dish washing machine and potato parer. We certainly will want the pupils to do but little of this work and I should judge it would be much cheaper to use these machines than to employ women."

"Possibly it might be well to have the plumbing put in in such a way but these machines could be installed later," said the supervisor, "but for the first year, at least, I do not think that we shall need them. Oftentimes the serving kitchen will be used for instructional purposes and we want to keep away from institutional standards in the equipping of this school."

"The faculty dining room and the small special dining room should be fitted up in as homelike a way as possible, and the waiting on table should approximate as nearly as possible home service."

#### Family Washing vs. Institutional.

"The laundry should be equipped with eight trays and with sixteen ironing boards. Above each ironing board should be placed an outlet for an electric iron. A gas range should be installed for the use of those girls who do not have electricity in their homes and a few of the ironing boards should have gas outlets for the heating of gas irons."

Here the principal interrupted. "I thought that an up-to-date laundry should be equipped with washing machines, mangles, and drying boxes or cabinets. Why haven't you included these in your equipment?"

"For the simple reason," said the supervisor, "that the girls are being trained for laundry

work in their own homes and the average laundry today doesn't have these special machines. It might be well to install one power washing machine in order that the pupils may become familiar with its use. By the time they have homes of their own washing machines will doubtless be very common."

"A sewing room should be fitted up with a low sewing table for each student, one large cutting table, three or four sewing machines, an ironing board with an electric iron for pressing, and as many cupboards for the storing of material as can possibly be put in."

"Your sketches are very complete," said the principal, "and the detailed plans of the building will be made in accordance with your layouts."

#### Automobile Repair Shop.

The next day the teacher of gas engine and automobile work reported to the principal. "The first essential in laying out a gas engine and automobile shop," said the instructor, "is a large door opening upon the street so that automobiles may be easily brought in and out. Of course, two doors are better than one if that is possible, because the shop often becomes crowded and it is sometimes necessary to move several machines in order to get one out. A long bench should be placed on the street side of the shop underneath the windows. The automobiles will be lined up facing these windows and the vises and tools should be as convenient to the automobile engine as possible. Under each window a three inch outlet should be placed leading out of doors. A long flexible hose can then be attached to the muffler exhaust of the car and thru this outlet the exhaust gas can be carried out of the building when an engine is running. Electric light outlets should be placed on the piers between the windows, to which extension light cords may be attached.

The sketch which I am submitting shows the other necessary parts of the equipment: A little machine shop at one end of the room for the making or fitting of small parts; a gas tank outside the building with a pump located just inside the door; two vulcanizers and a high bench for tire repair work."

Here the principal interrupted. "Do you propose to have your pupils begin work at once on automobiles brought in by persons outside the school? I should think it would be necessary to have a few engines on blocks on which the pupils would work during the first half year, at least."

"That might be desirable," said the instructor, "but it would not be a condition which obtains in real life. We have already demonstrated the fact that first year boys can do tire repair work, the grinding of valves, the removing of carbon, the replacing of bearings and bushings. They can true up the wheels, clean the spark plugs, and lubricate the car. The second year boys can take down the engine and give a car a complete overhauling."

"Your sketches have my approval and I appreciate the time and thought you have given to their preparation," said the principal.

#### The Electrical Lab.

A day or so later the instructor of electrical work brought his drawings to the principal's office. "You will notice," said the instructor, "that I have divided my room into two parts,—an elementary room in which the pupils will do the first year work. This will consist largely of bell wiring. Two by four inch studding should be set up for this purpose and some of the studding should be arranged in the form of rooms with a first and second story for the more advanced bell and light wiring. In this elementary room we will place a bench on which will be pipe vise for cutting and threading, with space underneath the bench for the storing of conduit pipe. In the advanced room we shall want a bench for coil winding; a lathe for turning up small motor parts; a gas oven for the baking of coils, commutators, etc.; a bench for the repair of motors and for the assembling of new motors which the boy will build. Considerable space should also be left free for the testing of electrical apparatus. The rooms should be separated by a wire-mesh partition.

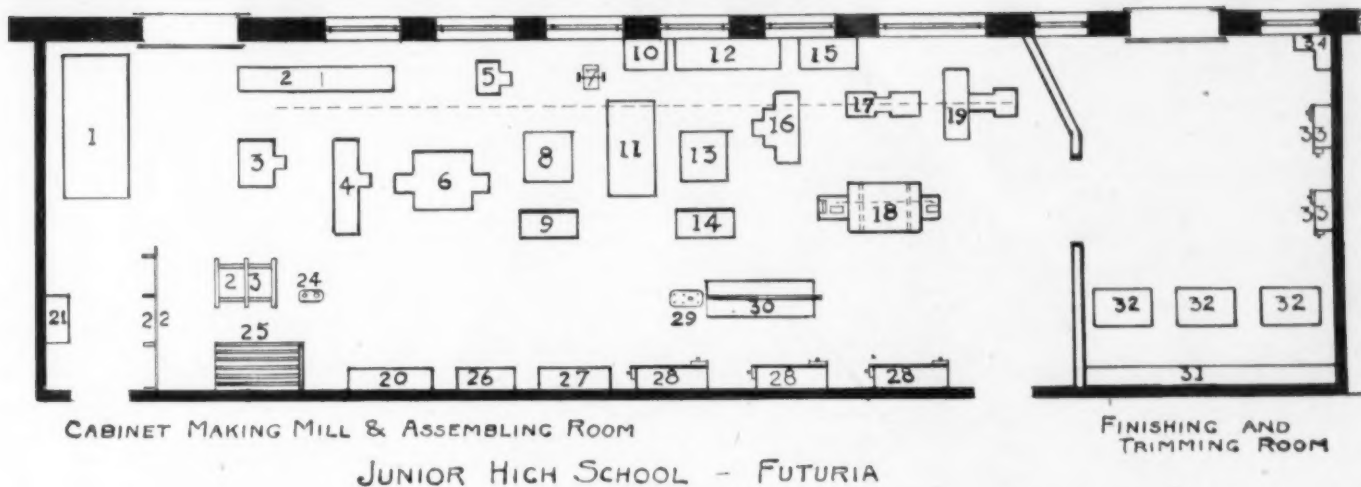
"Electricity is something that I know mighty little about," said the principal, "and as I have perfect confidence in your judgment your sketches are accepted without comment."

#### A Scientific Layout for the Print Shop.

On that same afternoon the teacher of printing came in. "I suppose," said the principal, "that there is no problem whatever in connection with the arrangement of a print shop. All you have to do is to line up your composing stands, place your presses at one end of the room, and that is all that there is to the problem."

"No," said the instructor, "there is a good deal more to it than that. An up-to-date print shop is laid out very scientifically in separate units. First, a part of the space we call the





composing room; secondly, we must have a press room; third, a stock room; fourth, an office; and fifth, we should have a bindery, if this work is not too advanced. In the sketches that I have submitted most of the bindery equipment has been omitted and this space has been filled with classroom seats. It is desirable in a print shop, and I should judge the same would be true of all other shops, that an instructor have a little space where he may call his class together and take up with them various points in connection with the work just when a good illustration has arisen in the actual work. The shop has been laid out so that there shall be as little lost motion as possible. The latest printing room practice calls for an office platform a little elevated from the rest of the room. On this will be placed the instructor's desk so located that he can survey the entire room, and there will also be placed on this platform the proof reader's desk, where the instructor or some pupil will do the proof reading. The drawing has been numbered to correspond with the following items of equipment:

- |                      |   |
|----------------------|---|
| A                    | 25. Dead Bank (Leads, Rules, Furniture) |
| Stock Room           | 26. Proof Press                         |
| 1. Shelves           | D                                       |
| B                    | Bindery                                 |
| Press Room           | 27. Paper Cutter                        |
| 2. Press             | 28. Table Truck                         |
| 3. Press             | E                                       |
| 4. Ink Cupboard      | Platform                                |
| 5. Counter Shelf     | 29. Desk                                |
| 6. Press Cabinet     | 30. Proof Desk                          |
| 7. Drying Table      | F                                       |
| C                    | Class Room                              |
| Composing Room       | 31. Seats                               |
| 8 to 23. Type Stands | 32. Blackboard                          |
| 24. Stone            |   |

Item No. 28 is a table truck which can be rolled out into the hall and on which the heavy paper stock can be placed. Cabinet No. 6, placed close to the presses, will contain the benzine cans, the wiping cloths, and the boxes of ink that have been opened. This case should have a metal top as it will often become smeared with ink.

"Your plans seem very complete," said the principal, "and they are approved."

#### Extensive Equipment for Woodworking.

The next layout to be submitted was that of cabinet making and the instructor of this subject gave to the principal a detailed statement regarding his sketch. "You will notice," said he, "that the machinery has been arranged so that the stock is routed directly from the lumber racks to the finishing room. Following is a list of the items of equipment numbered to correspond with the drawing:

- |                              |  |
|------------------------------|--|
| 1. Lumber Rack               | 19. Disc Sander & Jig Sander                 |
| 2. Swing Saw                 | 20. Turning Lathe                            |
| 3. Band Saw                  | 21. Stuk                                     |
| 4. Jointer                   | 22. Drying Rack for Glued Work               |
| 5. Grind Stone               | 23. Gluing Rack                              |
| 6. Planer                    | 24. Glue Tank                                |
| 7. Emery Grinder             | 25. Steam Coils for Heating Lumber           |
| 8. Variety Saw               | 26. Teacher's Desk                           |
| 9. Table for Variety Saw     | 27. Tool Cabinet                             |
| 10. Brazing Bench            | 28. 3 Work Benches                           |
| 11. Table for Drawings       | 29. Glue Tanks                               |
| 12. Band Saw Filing Bench    | 30. Upright Steam Coils                      |
| 13. Variety Saw              | 31. Metal Cupboards for Stains and Varnishes |
| 14. Table for Variety Saw    | 32. 3 Work Tables                            |
| 15. Table for Boring Machine | 33. 2 Work Benches                           |
| 16. Boring Machine           | 34. Cupboard for Hardware                    |
| 17. Drum Sander              |  |
| 18. Belt Sander              |  |

The lumber will be brought in thru the large door and placed in the lumber rack, No. 1. The pupils will work from the stock bills until the stock has passed the variety saw, No. 8, which will be used for ripping and dadoing only. Then the pupils will work from full size drawings that will be placed on the table, No. 11. On the variety saw, No. 13, will be done the cross cutting and fitting. Table No. 15 will be used to lay out the jobs for boring and doweling. Considerable space has been left adjacent to the steam coils and the glue tanks for the assembling of the furniture. The turning lathe, No. 20, will probably be used only occasionally for the making of turned parts for special pieces of furniture. The location of the line shaft, which will be located underneath the floor, is indicated by the dotted line. After the stock has been assembled, sanded, and cleaned up, the trimmings will be put on in a special room. There it will be finished and loaded on to wagons just outside the large door."

"You have done a fine piece of work," said the principal, "and your extended experience in this work makes me feel sure that your plans will work out most satisfactorily."

The sheet metal instructor next submitted his sketch. "There is no special problem in connection with the laying out of a sheet metal shop," said the instructor. The chief point to be observed is the arrangement of the benches so as to secure the best lighting. Each bench should be equipped with a gas furnace for soldering. A table should be placed in the

(Concluded on Page 75)

## PLANNING THE WAR-TIME SCHOOLHOUSE

### II. THE 4-ROOM SCHOOL

William Draper Brinckloe

"— and in the second article of the series, let's have some data concerning window-spacing, dimensions of rooms, material, ventilation, and so on. School people are continually asking us for this kind of information."

So writes the Editor of the School Board Journal; I reckon he's quite correct. Therefore, I'll start by taking a typical four-room school

building, and describing it somewhat at length; and, at the risk of seeming egotistical, I shall select one planned by myself. For frankly, it's a lot easier to give the details,—the why and

the wherefore,—of one's own work, than of some other fellow's work! Besides, this particular type of school has been built twice in the same county (Queen Anne's, Maryland), from the



FIG. 1. SCHOOL, CHURCH HILL, MD.

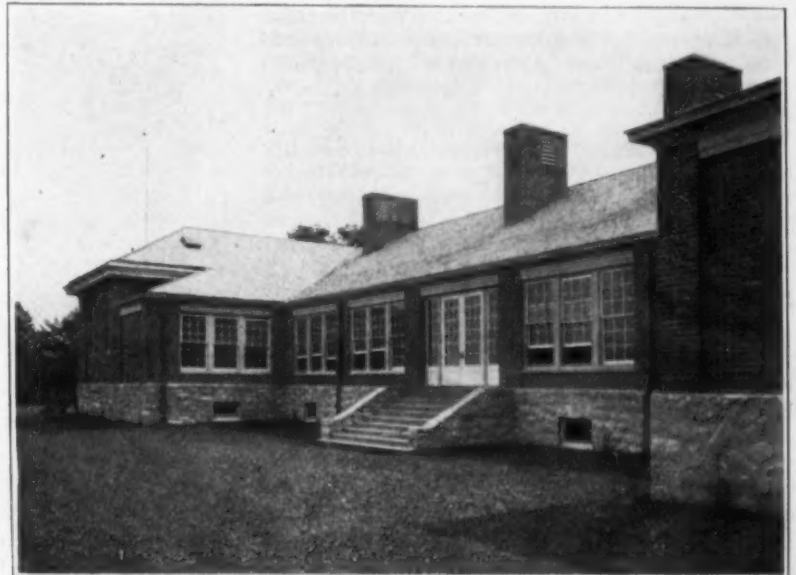
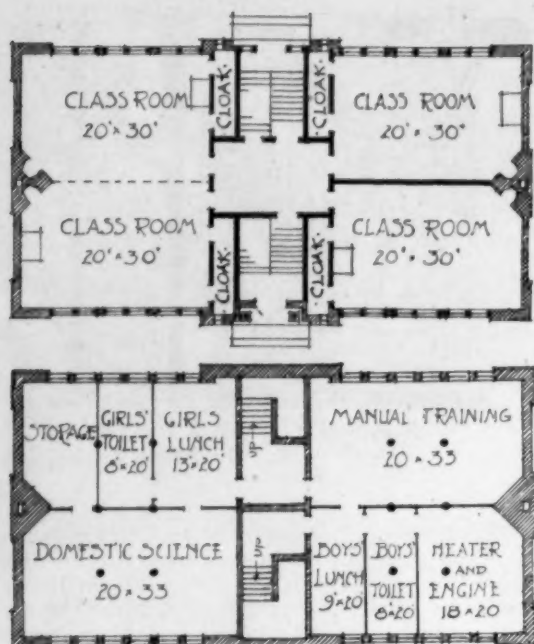


FIG. 5. REAR VIEW, ROSEMONT SCHOOL, ROSEMONT, PA.



Figs. 2 and 3.

same plans; and of course, such improvements as two years' actual use had suggested, were made in the second building.

In each case, the school was built to serve a small village of a few hundred folk—and the requirements were identical. "We want four classrooms, an assembly room, a teachers' room, and toilets for both sexes; besides space for domestic science and manual training," said the county superintendent. "Then, you must work in two small rooms, where the country boys and girls can eat their lunch. And remember, we have only \$11,000 for the whole thing,—built of brick, too; something of a problem, eh?"

That was something of a problem; but we solved it, he and I, as you see in fig. 1. The basement, as you notice, is raised out of the ground until its floor is only three and one-half feet below grade, saving a lot of excavation expense, and making this part of the building as well lighted as the main story. The walls are panel construction; twelve-inch piers at the corners, but only 8 inches of brick under the windows and at the blank ends. Quite a little saving, here! And there isn't any brickwork over the main windows; the wood cornice comes right down on the heads, cutting out the usual costly concrete or steel lintels. Still another economy is the use of stock millwork thruout; the main windows are standard twelve-light, and the transoms standard six-light; all 10 by 14 inch glass. The basement windows use a smaller light, 8 by 12 inch.

Now, let's turn to the first floor plan,—fig. 2. The four classrooms each measure 20 by 30 feet; a little smaller than some authorities recommend, but we have found the size very satisfactory. There is ample space for 32 single high-school desks, and from 36 to 40 for lower-grade pupils. The cloak rooms are three and one-half feet wide, with doors at each end. This permits the children to file thru in one direction, without confusion.

Of course, a separate assembly hall was out of the question; so two of the classrooms are joined by a rolling partition, and equipped with movable chair-desks that can be turned to face in any direction. The teachers' room is in the

attic of the central portion; reached by the rear stairway.

The problem of ventilation was solved simply and cheaply by building four open fireplaces. Ordinarily, the suction in these is ample to keep the rooms well aired; but in damp, muggy weather, a tiny blaze is necessary to create a good up-current. The transom sash are hinged at the bottom, and swing inwards, shooting the fresh air upwards to the ceiling, and keeping cold drafts away from the children. Farther south, a series of little "breeze windows" high up in the blank end walls, would probably be a good thing; but they are not needed in Maryland.

The separate entrances for boys and girls are at the ground-level, with stairs running up to the first story and down to the basement (fig. 3). Brick walls shut off the stair halls at the bottom, and wooden partitions at the top; so that a fire in the lower story could not possibly disable more than one stairway at a time. The upper doors keep smoke out of the hall, and permit the children to escape by whichever stairway is free. The doorway from the manual training room to the girls' basement hall is closed by a tin-clad fire door, kept locked except when used after hours by the janitor, etc. Thus, normally, the girls' basement is entirely isolated from the boys'.

The first floor joists are of short span, carried by 8 by 12 inch pine girders resting on iron pipe columns. Thus most of the basement partitions are non-bearing, and can be very light. We use one thickness of metal lath, plastered both sides with cement, making a slab of reinforced concrete about 1½ inches thick. All this is far more economical than the usual

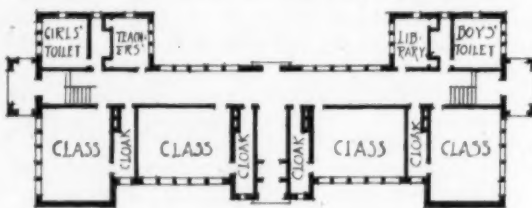


Fig. 6.

construction of heavy, long-span joists on solid brick partition-walls.

When the earlier school (at Sudlersville, Md.) was built, the appropriation wasn't sufficient; so boilers and plumbing were left off. The fireplaces warmed the building during spring and fall; in winter jacketed stoves were used. But the second building, at Church Hill, was constructed complete for \$11,000, including plumbing, heating, pumping-engine, water system, and all.

So much for the details of this particular standard school; now, let's briefly run over various other four-room plans. Fig. 4 is the same general type as the one we've just discussed; but library and teachers' room take the place of the rear stairway. Toilet rooms for boys and girls are on this floor, too; in flat country, if there isn't any town sewer, we usually have to put all the plumbing above the basement, in order to get the necessary drainage. And the classrooms are set fore-and-aft, with windows at the sides of the schoolhouse instead of front and rear. For under no circumstances should these windows face due north or south; so you can adopt the room exposure of either fig. 2 or fig. 4, according to the position of your lot. In the latter figure, I've put cloakrooms at the ends of the classrooms; this permits us to

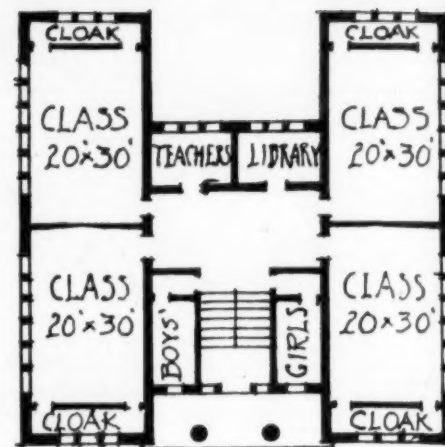


Fig. 4.

show windows at the front, instead of unsightly blank walls. Besides, by opening the transoms over the cloakroom doors, an excellent cross-draught can be had in hot weather, without the need of breeze windows. You can easily enough shift the cloakrooms in fig. 2, over to the far ends; but this would interfere slightly with the fireplaces, and really isn't necessary in cooler climates.

Figures 5 and 6 give an entirely different type—a splendid new school at Rosemont, Pa. Where funds are ample, this makes an ideal building; but of course the immense amount of hallway is costly to build, and to heat. However, this plan has one decided advantage over the compact layout; it may be built by degrees, very satisfactorily. The two central classrooms can be erected first; outdoor earth-closets can be used, or two of the cloakrooms may be fitted up temporarily as toilets. Later, one wing is added, making a three-room school, and so on. Finally, an additional classroom may be built on beyond each end-porch—and we have a six-room plant. It is even possible to put an assembly room out at the rear.

Figures 7 and 8 show a school at Coconut Grove, Florida; I have preserved the general layout, but made a number of minor changes in the plan. Covered pergolas connect the wings; the central octagon pavilion holds the drinking fountains, and serves as a play-center in very hot weather. The original idea, I believe, was to build an assembly room at the rear; but to my mind it would be better and cheaper to put up a light framework of iron pipe, over the playground, and cover this with canvas in stormy or very hot weather. Manual training and domestic science could be carried on here, too.

The unit type of school, described in last month's article, will of course fit a four-room scheme just as well as it does a three-room.

Now comes something that I rather hesitate to show,—for it isn't ideal, but merely the best that could be done with the meager \$3,500 that the school board managed to scrape together. However, other boards may be in the same fix; so I'll describe the sort of school (figures 9, 10,

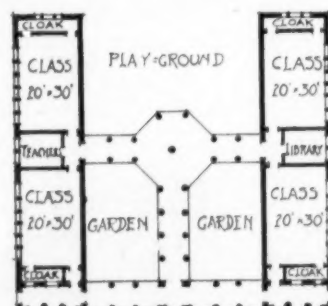


Fig. 8.



Fig. 7. SCHOOL, COCONUT GROVE, FLA.

11) that was built for an isolated little community of fisher-folk and oystermen. There could be no basement on that low sand-bar; heating and plumbing were out of the question. But "we must have an assembly hall where the people can come for meetings, moving pictures, and entertainments; there isn't such a place on the island," said the chairman of the board. So a rolling partition was planned, connecting the

(Concluded on Page 71)



# A CODE FOR SCHOOLROOM ILLUMINATION

Of all the physical conditions which affect schoolrooms, lighting has been considered in recent times as the primary requisite for comfortable and efficient study. Every authority who has written on school architecture has emphasized the need of adequate light and practically all hygienists have criticized the evil effects of incorrect or insufficient illumination. While it is interesting to note that one of the earliest studies of scientific classroom arrangement was that of the German hygienist, Dr. H. Cohn, relating to light, it is a fact that the subject has not been treated as fully as heating and ventilation and that there has not been as much progress in natural or artificial lighting as might reasonably be expected.

It has remained for a committee of the Illuminating Engineering Society of America to prepare the first adequate statement of schoolroom lighting requirements as found by a representative body of men and as the result of close observation and experience. The statement is a collation of a great amount of widely scattered data, found by independent students and investigators, and is in the form of a code and a series of explanatory notes. It will do much to fix a minimum standard for schoolroom lighting and is in our opinion a distinct contribution toward the standardization of schoolhouse planning and construction. For school boards, architects and engineers who are struggling with the problems of erecting new schools or remodeling old buildings, the code is invaluable. Its ultimate usefulness will be found in the formulation of legislation.

The final draft of the code was prepared by a committee headed by Mr. L. B. Marks of New York City, while the earlier studies were made by a committee of which Mr. M. Luckiesh of Cleveland, O., was chairman. The code is necessarily brief and general in its statements, and the most valuable material to guide school boards is to be found in the notes. The code in full is as follows:

**Article I. General Requirements.**—When in use, all buildings should be provided, during those hours when daylight is inadequate, with artificial light according to the following Articles.

Buildings hereafter constructed should be so designed that the daylight in the working space is reasonably uniform and the darkest part of any work space is adequately illuminated under normal exterior daylight conditions.<sup>1</sup>

**Article II. Intensity of Artificial Illumination.**—The desirable illumination to be provided and the minimum to be maintained are given in the

<sup>1</sup>Daylight illumination values should be at least twice the values given in the Table, Article II, for artificial lighting.



An Example of Satisfactory Direct Lighting.

following table,<sup>2</sup> being based upon present ideas of good practice.

## Desirable and Minimum Illumination.

	Artificial lighting Foot-candles (Lumens per square foot)* At the work	Minimum	Ordinary practice†
Storage spaces .....	0.25	0.5- 1.0	
Stairways, corridors .....	0.5	1.0- 2.5	
Gymnasiums .....	1.0	2.0- 5.0	
Rough shop work .....	1.25	2.0- 4.0	
Auditoriums, assembly rooms	1.5	2.5- 4.0	
Classrooms, study rooms, libraries, laboratories, black- boards .....	3.0	3.5- 6.0	
Fine shop work .....	3.5	4.0- 8.0	
Sewing, drafting rooms .....	5.0	6.0-12.0	

\*It should be borne in mind that intensity of illumination is only one of the factors on which good seeing depends.

†Under the column headed "Ordinary practice," the upper portion of the range of intensities is preferable to the lower; where economy does not prohibit, even higher intensities than those cited are often desirable.

**Article III. Shading of Lamps.**—Lamps should be suitably shaded to minimize glare. Glare, either from lamps or from unduly bright reflecting surfaces, produces eye-strain.

**Article IV. Distribution of Light on the Work.**—Lamps should be so arranged as to secure a good distribution of light on the work, avoiding objectionable shadows and sharp contrasts of intensities.

**Article V. Color and Finish of Interior.**—Walls should have a moderate reflection factor; the preferred colors are light gray, light buff, dark cream and light olive green. Ceilings and friezes should have a high reflection factor; the preferred colors are white and light cream. Walls, desk tops and other woodwork should have a dull finish.

**Article VI. Switching and Controlling Apparatus.**—Basements, stairways, store rooms and other parts of the building where required, should have switches or controlling apparatus at point of entrance.

**Article VII. Emergency Lighting.**—Emergency lighting should be provided at main stairways and exits to insure reliable operation when, thru accident or other cause, the regular lighting is extinguished.

**Article VIII. Inspection and Maintenance.**—All parts of the lighting system should be properly maintained to prevent deterioration due to dirt accumulation, burned-out lamps and other causes. To insure proper maintenance, frequent inspection should be made at regular intervals.

## Daylight in Schoolrooms.

In its notes on the code the committee urges that, in general, the minimum intensities of daylight illumination be considerably greater than those provided in artificial lighting, owing to the adaptation of the eye to a much higher level of illumination (brightness) in the daytime.

One of the fundamental rules for proper lighting, says the committee, is to have the preponderance of light come from the left side. For this reason many school authorities advocate *unilateral* lighting, that is, lighting by windows on one side of the room only, especially for classrooms. This method of lighting is recommended where the classrooms do not exceed about 20 feet (7.9) in width, with windows about 12 feet (3.9 m.) high. If the rooms are much wider than this, *bilateral* lighting, that is, lighting by windows located on two sides of the room, may be required in order to provide sufficient illumination in every part of the room, and at the same time, to prevent too great a diversity of contrast in the intensity of light on the work spaces.

<sup>2</sup>The illumination intensity should be measured on the important plane which may be the desk-top, black-board, etc.

The method of computing the flux of light (lumens) required to do any desired illumination is described under the heading "Design of Lighting Installation" on page 15.

For more specific information regarding the lighting of shops, see "Code of Lighting: Factories, Mills and Other Work Places," issued by the Illuminating Engineering Society.



Bad Lighting. The lighting units are hung too low and the light sources are not adequately shaded. Note the glossy varnished surfaces on benches and woodwork.



To secure the highest lighting value it is recommended that the room be so designed that no part is more distant from a window than one and one-half times the height of the top of the window from the floor.

Windows at the left and rear where practicable are preferable to those on the left and right sides of the room, because of cross shadows created by the latter arrangement. Lighting by overhead sources of natural illumination, altho sometimes used for assembly rooms, auditoriums and libraries with relatively high ceilings, has ordinarily little application in classrooms and has found little favor in practice.

The sky as seen thru a window is a source of glare. For this reason the seating arrangements should always be such that the occupants (pupils) of the room do not face the windows.

Tests of daylight in well lighted school buildings indicate that in general the glass area should not fall below 20 per cent of the floor area.

As the upper part of the window is more effective in lighting the interior than the lower part, it is recommended that the windows extend as close to the ceiling as practicable.

The lighting value of a window at any given location in the room, will depend upon the brightness of the sky, the amount of sky visible thru the window at the given location in the room, and indirectly upon the reflection factor of the surroundings and the dimensions of the room.

Observations in well lighted schoolrooms having a comparatively unobstructed horizon, show that under normal conditions of daylight, satisfactory illumination is usually obtained when the visible sky subtends a minimum vertical angle of 5° at any working point of the room.

In cases in which the horizon is obstructed, as by adjacent high buildings or by high trees, provision should be made for a larger window area than would otherwise be required; also if need be, for redirecting the light into the room by means of prismatic glass in the upper sashes of the windows, or by prisms canopies outside of the windows.

In discussing window shades the committee urged that these should be made of a light colored material, sufficiently translucent to transmit a considerable percentage of light while, at the same time, diffusing it. They argue that the shades should be operated by double rollers placed near the level of the meeting rail of double hung sash windows.

The committee urged also that the walls of light courts should have high reflection factors and that dark colors be avoided.

The committee urged that windows and overhead sources of natural light (so-called skylights) be washed at frequent intervals and that surfaces such as ceilings and walls be cleaned and refinished sufficiently often to insure their efficiency as reflecting surfaces. It should be borne in mind that the maintenance of adequate daylight indoors is also dependent upon various external factors, such as the future erection of buildings and the growth of trees or vines.

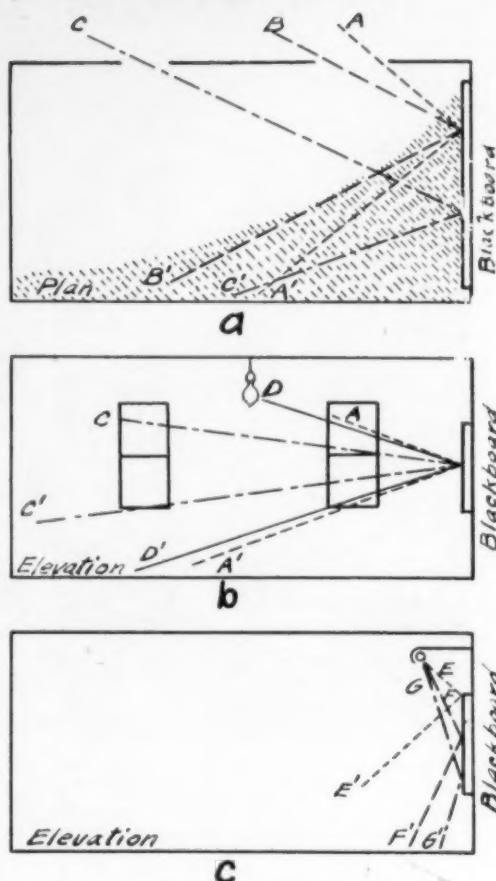
#### Artificial Light.

In discussing artificial lighting systems the committee divided the systems into three classes, namely, direct, semi-indirect, and indirect. It stated frankly that the division is arbitrary and that the boundary lines are quite indefinite. In defining each of these systems the committee wrote:

"A direct lighting system is known as one in which most of the light reaches the working plane directly from the lighting unit including the accessory which may be an opaque or glass reflector or a totally enclosing transparent or translucent envelope. Direct lighting systems may be further classed as *localized* and *general* or *distributing*. In the former the units are so placed as to light local working points, and in the latter they are well distributed so as to light the whole area more or less uniformly.

"A semi-indirect system is known as one in which a portion of the light reaches the working plane directly from the unit and a relatively large portion reaches the working plane indirectly, by reflection from the ceiling and walls. The accessory is usually an inverted diffusing bowl or glass reflector. When this glass has a high transmission factor the lighting effect approaches that of ordinary direct lighting, and when of low transmission, the effect approaches that of indirect lighting.

"An indirect system is known as one in which all or practically all the light reaches the working point indirectly after reflection from the ceiling and walls. The accessory is usually an



Glare from blackboards.

- Horizontal projection showing that occupants of seats in shaded area are subjected to glare from blackboards.
- Vertical projection showing angles at which glare is experienced from daylight and from artificial light.
- Arrangement of local artificial lighting to minimize glare.

opaque or slightly translucent inverted bowl or shade containing a reflecting medium.

"All three of these systems of lighting are in successful use in schools. There has been a growing preference for semi-indirect and indirect lighting, especially since the introduction of modern lamps of great brilliancy. Local lighting by lamps placed close to the work is unsatisfactory except for special cases such as the lighting of blackboards, maps, charts, etc."

Except in very rare instances bare light sources should not be exposed to view. They should always be adequately shaded or completely hidden. Even when shaded by translucent media, such as dense glassware, the lighting units should be placed well out of the ordinary range of vision; in other words, it is recommended that lighting units be of low brightness,<sup>3</sup> even if they are located high in the field of view.

The maximum brightness contrast of juxtaposed surfaces in the normal visual field should be preferably not greater than 20 to 1; that is to say, the darkest part of the working space observed should have a brightness preferably not less than one-twentieth of that of the brightest part.

Glossy surfaces of paper, woodwork, desk-tops, walls and blackboards are likely to cause eyestrain because of specular or mirror-like reflection of images of light sources, especially when artificial light is used. Matte or dull finished surfaces are recommended. It is to be noted that a high reflection factor does not necessarily imply a polished or glazed surface.

The committee urges the use of unglazed paper

<sup>3</sup>Preferably not to exceed 250 millilamberts. A millilambert is equal to the brightness of a perfectly reflecting and diffusing surface illuminated to an intensity of 0.929 foot-candle, (0.929 lumen per square foot). It is also equal to 0.002 candle per square inch.

The following table shows the order of magnitude of the brightness of some light sources in common use:

Approximate Brightness.		
	Millilamberts.	Candles Per Sq. In.
Indirect lighting: ceiling, directly above the lighting unit	5 to 75	0.01 to 0.15
Semi-indirect lighting: heavy density glassware	35 to 100	0.07 to 0.2
Semi-indirect lighting: light density glassware	200 to 1,000	0.04 to 0.2
Direct lighting: 10 in. (25 cm.) opal glass ball containing 100-watt vacuum tungsten lamp at center	250 to 500	0.5 to 1.0
Direct lighting: vacuum tungsten lamp, (frosted) in open bottom reflector	2,000 to 3,000	4 to 6
Vacuum tungsten lamp, filament exposed to view	500,000	1,000
Gas-filled tungsten lamp, filament exposed to view	2,000,000	4,000
Gas-mantle, bare	15,000	30
Gas-mantle, concealed in 6 in. (15 cm.) opal glass globe	1,000	2
Mercury arc tube (glass)	8,000	16
Daylight: clear blue sky	1,000	2

and large, plain type in school books and advocates that children be required to hold book properly and to assume a correct position relative to the light source.

The committee declares that in practice it has been found that artificial and daylight cannot be satisfactorily combined late in the afternoon and urges that artificial light be used exclusively since improvements are at hand which produce daylight color values.

The illumination intensity on the horizontal working plane should be as uniform as possible. The variation should not be greater than 4 to 1.

#### Approximate Coefficients of Utilization—Modern Lighting Equipment.

	Small Rooms (Offices, Corridors, etc.)	
	Light color walls, ceiling	Medium color walls, ceiling
Direct lighting; dense glass (open bottom reflectors)	0.40	0.35
Semi-indirect lighting; dense glass	0.25	0.22
Indirect lighting	0.23	0.20
Medium Sized Rooms (Classrooms, Laboratories, etc.)		
Direct lighting; dense glass (open bottom reflectors)	0.50	0.45
Semi-indirect lighting; dense glass	0.35	0.30
Indirect lighting	0.30	0.25
Large Rooms (Auditoriums, etc.)		
Direct lighting; dense glass (open bottom reflectors)	0.62	0.60
Semi-indirect lighting; dense glass	0.43	0.40
Indirect lighting	0.40	0.38

The chief factors which must be considered in arriving at the size and number of lamps to be used in a given room are (1) the floor area; (2) the total luminous flux<sup>4</sup> emitted per lamp, and (3) *coefficient of utilization* of the particular system considered. The first should be measured in square feet. The second may be obtained from a data book supplied by the manufacturers of lamps. The third involves many factors such as the relative dimensions of the room, the reflection factor of the surroundings, the number of lighting units and their mounting height, and the system of lighting. By *coefficient of utilization* is meant the proportion of the total light flux emitted by the lamps which is effective on the working plane. In the accompanying table approximate coefficients of utilization for modern lighting equipment are given. The working plane in this case is a horizontal plane 30 in. (76 cm.) above the floor. These values refer to initial installation without any allowance for depreciation.

For determining approximately the size and number of lamps to be used in a given room by means of the coefficients of utilization given in the preceding table, it is necessary to know the luminous output in lumens per watt for the electric lamps considered or in lumens per cubic foot of gas consumed per hour if gas lamps are considered. At the present time (1917) the light output of tungsten filament electric incandescent lamps, based on average service conditions of regularly maintained installations, ranges from 8 lumens per watt for the smaller vacuum tungsten lamps to 14 lumens per watt for the larger gas-filled tungsten lamps employed in school lighting. For incandescent gas systems similar service values range from 150 to 250 lumens per cubic foot of artificial gas consumed per hour. The computation for the total lumens required to give a certain illumination intensity in foot-candles is as follows:

(Continued on Page 51)

<sup>4</sup>This ratio refers to the light received by the object illuminated and should not be confused with the ratio of 20 to 1 for brightness contrast previously given, which refers to the light radiated by the object. For example, a blackboard and a white sheet of paper on it may receive the same amount of light, but the latter will reflect much more light than the former, thus causing a marked brightness contrast between the two surfaces.

<sup>5</sup>The flux is measured in lumens. A lumen is the unit of light flux and is the quantity of light required to illuminate 1 square foot of area to an average intensity of 1 foot-candle.



# The Building Problem in City Schools

E. R. Edwards, State High School Inspector,  
Jamestown, North Dakota

A large number of school districts all over North Dakota as well as rather generally over many other states are confronted with the serious problem of securing more and better buildings and the proper equipment of these buildings in cases where they can be secured. This condition is due in North Dakota very often to the unscientific method employed in assessing and bonding. The same is equally true in many other states. In some cases the condition is due to a haphazard and thoroly unsystematic method of handling school finances both at present and in the past by the Boards of Education charged with this important duty. But whatever the cause the effect is the same.

To use North Dakota as an example and because it is fairly typical of many states, we find that four out of five agricultural high schools are in districts levying over the legal limit in mill tax rate. Over one-half of the first class high schools are in districts similarly afflicted. A considerable number of these districts have to take advantage of a provision in the North Dakota statutes allowing an extra ten mills of school tax to be levied in special districts by vote of the people at the annual school election. (The legal mill rate for school purposes in North Dakota is thirty mills.) In the districts having second and third class high schools the number financially embarrassed is less as would be expected. The best schools cost the most money as they should. In North Dakota a school district can only bond for five per cent of the assessed valuation for building purposes including the permanent equipment. Somewhat comparable conditions are imposed in a number of other states. Considering the financial situation as stated and the fact that so many districts all over the United States really are seriously handicapped for lack of proper school buildings we have before us a very serious school problem.

It is a shame that all children cannot be provided with proper school facilities without someone being compelled to violate law. Children are worth while. They are the biggest and most valuable asset the State and Nation have. Their complete education under safe and thoroly healthful conditions is more immediately important than ever before. They must be prepared to assume the greatly increased responsibilities of American citizenship which they must bear at an early date. Good and adequate buildings are necessary to complete and successful education. Hence it is a patriotic duty for Boards of Education and taxpayers to face the facts squarely and work together for a reasonable solution of the important problem. Added problems have confronted us since we entered the war and we must bear this one with the same spirit of patriotic fortitude.

First and foremost in the possible solution of the building problem stands the question of assessing property in a sane and sensible way. There are many laws providing that property must be assessed at its true value or at a fairly high per cent of such value; but in practice property is assessed far below its value and in a very unsystematic way. This means that when districts find some bright morning that their school buildings have vanished during the night, as happens too often, they discover that they are unable to bond for enough to rebuild; they cannot increase their tax levy legally, and they have only a small amount of collectable insurance. Suppose that a district or city is in a state where they are allowed to bond for only five per cent of the assessed valuation for school purposes and for only five per cent for municipal purposes. Suppose, as is often the case, the property is assessed at only one-third or one-fourth of its value. This means that a city can only bond altogether for ten per cent of a

probable twenty-five per cent of the total property value or about two and one-half per cent of the value of the tangible security offered. No business could exist under such conditions.

Then we may safely conclude that our first great change precedent to a reasonably good school building program even is a radical change in the too prevalent schemes of property assessment and taxation and bonding for school purposes.

It is possible to find many towns and cities which have built beyond their probable future needs, have expended all their means on building and have practically nothing with which to supply suitable new furniture and equipment. It always causes a pang of sadness in the writer when he sees a fine new building furnished with the desks upon which many generations of school children have registered, or when he finds a fine gymnasium devoid of equipment caused by lack of funds. This indicates clearly that not all boards of education exercise good business judgment in school matters. Too often we find school facilities limited or lacking because there has been a lack of foresight on the part of boards in the past or because the state has failed by law to require that a sinking fund be provided for the retirement of bonded indebtedness at the time the bonds are issued. This simply shows the need of both a comprehensive financial scheme and a comprehensive building scheme in every school district whether city or country, but especially in the town and the city.

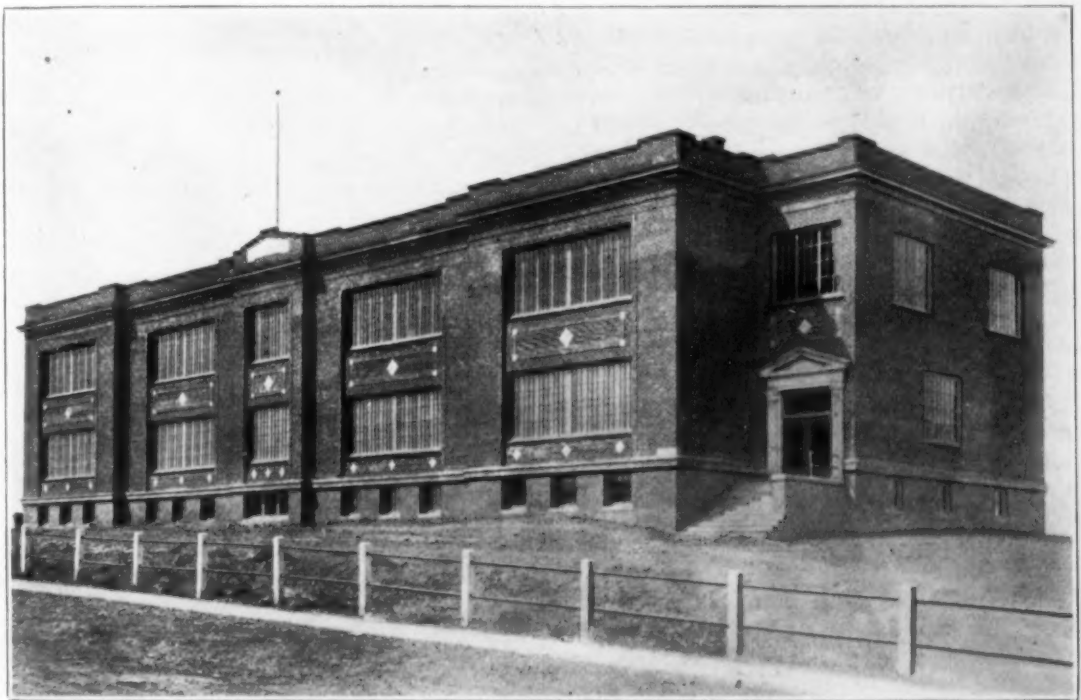
Most school building calamities are due to the employment of an incompetent or poorly qualified architect, or else politics or something besides good business has entered into the building scheme. The designing of school buildings is specialized work and a very particular piece of work in these times when costs mount so high and buildings are so sorely needed. The architect who has specialized in schoolhouse planning is the only kind of an architect who can combine convenience, safety, needed room, and stability at a close figure. He may charge more than a local man who has not specialized or who is inexperienced in this branch of architecture, but in the end he will be found far cheaper. I am not arguing against the employment of a local man necessarily. I am only trying to impress the truth that the architect who plans a schoolhouse that will

stand the test of time and who keeps the cost within the limited means of most school districts; who gets a district the room it needs without waste space and "gingerbread" work, must be a man who has had successful experience in dealing with these specific problems. Every state is probably blessed with some such men; if not there are a number of men in the United States who have practically devoted their lives to successful school architecture.

Every school district which comprises a city or town that may grow or which is growing should have a comprehensive building plan and, if the law will permit, a systematic building budget. Where legislation is needed it should be sought as early as possible. It is the safest and cheapest way in the long run. For this plan a school architect should be employed. It seems better to build all of a building at one time, but it is entirely possible to build on the unit plan and get both harmony and needed room. This presupposes that the complete plans will be drawn and adopted before any work is done. Many cities are no doubt temporizing with old or unsafe or insufficient buildings because they cannot raise enough money to erect and equip a building to meet all of their needs and care for anticipated growth. The unit building plan will enable many places both large and small to relieve congestion and really start a needed building program. Such a plan while it may involve a cost of fifteen per cent or even twenty per cent more distributes the burden of building cost over a longer period of years and also gives the present generation of school children their rightful facilities for education amid pleasant and healthful surroundings.

One other thing deserves emphasis in any article on school buildings and that is selection of sites. Too often these are not selected and secured when the city or town is small. The writer has often thought it would be well for boards of education, wherever laws permit, to go into the real estate business just enough to hold by option or otherwise enough good sites for school buildings to provide for possible future needs. It would often save money as well as anxiety and in some cases where such sites were not needed they would prove a source of actual profit to the district. Anyway one thing is certain, school sites should never be selected because they are cheap or because some interested parties of influence desire certain parcels of ground sold for such purposes. The only safe guiding motive and consideration for the board of education is the welfare of the

(Concluded on Page 68)



NEW SCHOOL, BOWMAN, N. D.  
Jesse M. Warren, Architect, Butte, Mont.

(See Page 68.)





## THE AMERICAN School Board Journal

DEVOTED TO  
Legislative and Executive School Officials  
WILLIAM C. BRUCE, Editor

### EDITORIAL

#### SCHOOL ARCHITECTURE IN 1917-18.

The progress of the junior high school as a distinct type of American school building, the growing understanding of the arrangement and disposition of shops for manual training, continuation, technical and trade schools and the widening study of schoolhouse standardization have been the three outstanding features in school architecture of the year, April, 1917-18. The movements are interesting in view of the fact that they represent steady progress in the face of a considerable slowing down in the construction of new schoolhouses during the summer and fall of 1917.

Innovations and improvements in the planning of elementary and high schools for cities have been practically nil during the past year. While architects are continuing to make refinements there is practically no deviation from the standard types of plans that have been slowly growing during the past two decades. If anything there is a gradual simplification of exteriors, more straightforwardness in arrangement, greater regularity of shape in classrooms, and better adaptation to community use.

The junior high school as a distinct type is rapidly coming into its own. As principles of school organization it is firmly established that the intermediate or junior high school shall include the seventh, eighth and ninth grades and that class units shall average from 30 to 35 children. The character of the academic study requires classrooms not unlike those of the elementary schools, while the shop and laboratory work requires rooms and equipment quite similar to those used in the senior high schools. The assembly halls and gymnasiums must be adequate for the entire student body. A study of a number of most recent junior high schools shows that the buildings which have no basement, and which are limited to two stories in height, are most efficient and economical.

While the growth of the shop departments in all schools has been very significant during the past year it is likely that the next two or three years will see developments which will entirely dwarf recent progress. The Smith-Hughes law will have full force and effect within the next year or two and will compel a greater degree of productiveness on the part of school shops than was dreamed of in the past. The law will remove the formalism that has existed in the manual arts and will compel the acceptance of standard trade practice in the arrangement of shops and the selection and installation of machinery. It is certain that greater flexibility and wider usefulness will be demanded in every kind of workroom in schools.

The consolidated rural high school has had immense growth during the past year but the movement has not been followed by architectural improvement commensurate with that of the city high schools. Country school boards have been too much inclined to copy the city schools without eliminating the mistakes of the

city buildings. The best growth in rural consolidated schools has come in the equipment of the mechanical departments where special plans have been worked out for ample and economical heating and ventilation, sewage disposal and water supply systems.

Fireproofing has not made consistent growth during the past year due to the excessive cost of materials and the diversion of interest from this aspect of the problem. More than ever cement is coming to be used as a safe, lasting and economical material of school construction. It has demonstrated its utility and its economy in hundreds of buildings erected during the past year. As methods of handling cement are becoming better understood by the average contractor, this form of construction is becoming more and more the standard. It may be added that New York City has adopted concrete in place of steel-and-tile and that great economies are foreseen which will greatly offset the increased cost of the latter type of construction.

The movement toward schoolhouse standardization is making notable progress as was emphasized, in February, by the Progress Report of the N. E. A. Committee. The Committee has studied several hundred school buildings and its tabulations, as made by Mr. Frank Irving Cooper, are beginning to show definite value. While it is still too early to predict the effect of the committee's work it is certain that many theories and principles which have been more or less tentative and subjective will be replaced by definite, objective standards, verified from the results attained by hundreds of architects all over the country.

Coincident with the activity of the Committee on Standardization considerable has been done toward establishing minimum requirements in lighting and ventilation. A committee of the Society of the Illuminating Engineers has prepared a lighting code that is at once definite and helpful. It lacks, however, the well rounded approach to the problem which might have been had if the illuminating engineers had drawn into their councils, recognized committees of hygienists, architects and school authorities. The program which the engineers have prepared is, however, thoroughly workable and, in our opinion, fundamentally correct.

Quite interesting as a sidelight on the improvement of old schoolhouses is the survey movement fathered by Prof. George D. Strayer, of Columbia University. During the past year Dr. Strayer made surveys of school buildings at St. Paul and Omaha and his methods have also been employed at Bay City, Mich., and a number of other small cities. Dr. Strayer believes that every element of schoolhouse planning, construction and equipment can be made the subject of inquiry so that a very comprehensive estimate can be made of any building or of all the school buildings of a city. The plan is most commendable for systematizing the study of existing school buildings and for bringing to light all the fundamental defects which exist in old and unsatisfactory structures. While there is an element of the ridiculous in placing a definite percentage value on the fact, for example, that a schoolhouse has stairs which are six inches too wide, or that a classroom is not lighted in an orthodox manner, we know of no means of bringing these defects more clearly to the attention of school boards and of superintendents than by thus defining them and giving them a definite value.

The danger of schoolhouse standardization as we see it, is the tendency on the part of schoolmen to view it as a process of formalizing school planning. Should this notion become prevalent it would seriously hamper initiative and originality on the part of architects. It

would be most deplorable if it prevented the introduction of desirable new types of buildings and growth in those sanitary and educational features which have made American school buildings the leaders among all the nations. It is emphatically not the idea of those who are leading in the work of standardization to place obstacles in the way of the greatest freedom in design and planning. The committee is only seeking to prevent a repetition of those common mistakes which have caused the loss of uncounted sums and to make all new buildings efficient and economical.

#### THE FINANCIAL PROBLEM.

The fact that the purchasing power of every dollar of taxes is hardly that of sixty cents before the war, has provided the greatest of the building problems. Added to this have been the difficulty of disposing of bonds at low rates of interest and the necessarily unfavorable attitude of the national government toward the issuance of large amounts in bonds for public as well as private purposes. School boards have been between two fires—the high costs and the continued demand for school accommodations.

Just here it is well for members of school boards to remember that it is a patriotic duty to keep the school plant at full efficiency, to provide seats for all children in sanitary and permanent buildings and to make such expansions and extensions as are needed for the growth of school population and for meeting the educational demands that will arise from the war. The United States Commissioner of Education has repeatedly voiced the policy of the government in declaring that the school plant should be maintained at a reasonable efficiency and that such extensions as are needed should be made. Recent expressions which bear the approval of every member of the president's cabinet indicate that a large measure of service will be asked of the schools in various educational readjustments and that for these a maximum demand will be made on high schools where occupations can be taught. It seems to us that school boards should plan to erect only the schoolhouses which are immediately necessary and should discontinue all construction which looks to a development beyond the next year. Even in those buildings which are necessary only the absolute minimum necessities should be provided and everything should be cut to the bone. It does not appear to us to be desirable that cheap construction be resorted to or that safety standards be lowered. It should not be forgotten that costs will not drop for some years—in fact they will never reach pre-war levels.

#### TACT ON THE SCHOOL BOARD.

The attention of the Journal has been called recently to a number of flagrant breaches of tact on the part of persons high in authority in school affairs. In one instance a school board member visited a teacher and before her class harshly criticized her for what he considered a mistake. The lady had spirit enough to demand an apology and, when that was not forthcoming, she presented her case to the board and resigned. In another state, a department head in a public institution successfully showed a conference of school officers that certain criticisms and derogatory statements of a high official were untrue. The latter thereupon denounced the teacher in a fit of anger and threatened him. In both these cases the man higher up used the principle that might is right and when called to task applied in a small way the methods of a well known transatlantic combatant.

It is constantly necessary for school officials to call the attention of subordinates to mistakes



and shortcomings—that is one of the purposes of the elaborate systems of supervision which have been worked out in the schools. But certainly such correction can be done fairly and kindly, with due regard to the rights and feelings of teachers and patrons, and with the spirit of tolerance. There is no necessity, except in the most extreme cases, of public denunciation and humiliation. And when a mistake is made an acknowledgment of error is certainly due the aggrieved subordinate. In the cases cited more than this—a positive apology should have been made.

The efficiency and the authority of a school board member or a superintendent will be impaired in no way if he admits an error in a manly way. In fact the refusal harms him immensely and raises in an entire school system a feeling of distrust and resentment.

### THE SERVICES OF ARCHITECTS.

The Atlanta board of education proposes to dispense with the services of architects in the planning of new schoolhouses. It has ordered that the drawings for future buildings be made by the teacher and the students of the class in architectural drawing in one of the high schools. The board hopes to save the fees of the architects and at the same time to provide valuable practice in productive work for the boys who constitute the classes.

The proposal of the Atlanta board is amazing particularly as the chief object to be obtained is economy. It hardly seems possible that men, who have the experience and knowledge of affairs in general and business in particular demanded of school board members, should not know that the reasons for employing architects in any building project is economy—proximate and ultimate economy.

Quite rightly the proposal of the school authorities has been vigorously opposed by the Georgia Chapter of the American Institute of Architects on the ground that the problems of planning schoolhouses are far deeper and more complicated than the mere making of drawings. In a letter to the board, the architects point to the fact that successful practice of architecture involves a working knowledge of the methods of not less than 65 building trades and of the manufacturing processes of scores of building materials. The planning of any building and particularly of school buildings implies a knowledge and practical experience in the fields of structural engineering, sanitary engineering, heating and ventilation, lighting and considerable knowledge of design and the use of materials. Added to these practical phases of the subject the architects must have an understanding of those deeper problems of planning which involve the convenience and utility of the schoolhouse for educational purposes, its safety against panic and fire, durability and its beauty of outline, mass and color. Again, the committee of the chapter argues that it is unbusinesslike and highly hazardous to place the responsibility for an expenditure of \$100,000 in new buildings in the hands of a group of boys and a teacher who is removed from the business world. Finally the committee points out that the responsibility for ultimate results will remain with the board and cannot be passed on to anyone no matter how willing he may be.

Looking at the matter from a purely economic standpoint, it is folly to entrust the erection of schoolhouses to any but technically trained and thoroly experienced architects. And school boards have no right to employ other than men whose fitness is unquestioned, for school funds are public and school board members are bound under oath to get one hundred cents of value for every dollar they spend.

### IDEALS FOR SELECTING A SUPERINTENDENT.

The New York Board of Education has had presented to it a statement of the qualifications which the new superintendent of the New York City schools must possess and these qualifications are strongly tempered by the present emphasis on democracy as a living ideal of government. The statement which is signed by a body of educators headed by Dr. Dewey is in part as follows:

"The new board of education is to elect an educator to the most important position in the United States. The seriousness of its task is augmented by the unusual demands of the day. Traditional education had shown itself unable to meet the new needs of society, and was on the threshold of radical change when the world war broke out, bringing with it an unusual strain on all social activities and special demands on our educational systems. New York city, with its cosmopolitan population, presents an educational problem that will tax the ability of the most gifted. New York is entitled to the best there is in educational leadership. It will be a calamity if the emergency is met in a narrow or provincial spirit. Every person suggested should be scrutinized in the light of the most searching tests.

"Does his record show him to be an executive gifted in educational leadership? Has he made his reputation thru development of important educational policies and by enlisting the hearty co-operation of others in their support? Or has he, however efficient in details, taken refuge in administrative routine?

"Has he shown himself a resourceful executive on the financial side, capable of looking ahead and grasping the chief factors of expense for salaries, building, equipment, etc., in their relation to a general policy framed in educational grounds; or has he allowed himself to subordinate educational to economic considerations and to become immersed in business details which can be handled by others?

"Does his experience show him to be alive to all the active educational movements of the day, alertly and widely acquainted with all which is going on that may profitably be adapted to New York conditions? Is he capable of productive scholarship himself and likely to stimulate it in others? Would his presence set an intellectual standard, or would it tend to make teachers content with intellectual mediocrity? Would his character and methods impress the fact that professional spirit and professional ability are the only roads to recognition and advancement?

"Does he lead by intellectual force and insight rather than by dictation, by personal contact rather than by issuing orders from a central office? Can he inspire the administrative staff to measure supervisory ability by power to detect, evoke and improve abilities which exist, or does his record show a person given to thinking of supervision in formal terms? Can he maintain leadership along with that decentralization which will encourage others to resume responsibility? Will he judge capacity by results secured, or is he jealous of ability about him and satisfied only when others do things in the particular way he himself follows? Does he repress or welcome originality in others? Does he know how to select the men and women who are especially capable of carrying out specialized tasks and how to inspire them in propelling enthusiasm?

"Does his record show an appreciation of the need of individual judgment and initiative in order to deal with the complex variety of problems presented in the various portions of greater New York? Or does he make a fetish of uniformity? Without sacrifice of unity in essentials, can he encourage the disposition of each school and group of schools to do the particular work needed in his own locality? Does he have the sympathy and imagination which will enable him to understand variety of racial groups which make up our polyglot population while standing for welding all together into a vigorously loyal Americanism?

"Has he shown the ability to attract the attention of the general public to the great problems of public education, to enlist the co-operation of all interested social and philanthropic organizations in the community?

"Finally and above all, does his record show him to be imbued with that spirit which the war has revealed as the great need of a loyal and efficient democracy? Does he put foremost the

problems of forming a democratic citizenship, that type of socially minded citizen who regards the community and state as agencies to be served rather than as instruments for self-advancement and for the display of personal power? Has he carried this spirit of democratic citizenship into his own relations with the supervisory and teaching force? What has he accomplished in developing esprit de corps which shows that he has the vigorous and sympathetic personality required to bring harmony and devotion into a school system of 22,000 teachers? Has he made relation to a sound democratic citizenship the criterion of all his policies, educational and administrative?

"These are high and exacting requirements. There must be men or women, within or without the city school system who measure up to them. We ask for methods in the search for candidates and in the examination of their qualifications which will make final appointment a guarantee that the one chosen is the best available, so as of itself to inspire security, confidence, and hope in the future of the New York school system among both the citizens and teachers of our great city."

The preceding statement should be of help to every school board which is wrestling with the problem of selecting a new superintendent. The statement of principles is not all—inclusively it is comprehensive and fundamental.

### CONFIDENCE IN SCHOOL ADMINISTRATION.

Confidence is an important element in school administration just as it is in business and in banking. This confidence must underlie and stabilize all the relations which exist in a school system. The teacher must rely on the principal and on the superintendent for the wise administrative direction of the school. In turn the superintendent must depend on the principal and on the teacher for carrying out his orders and for conducting the ordinary teaching processes in an orderly and efficient manner. Between the board of education and the superintendent there must be similar faith, strengthening and supporting their respective functions and labors. Finally, on the part of the public, there must be reliance in the public spirit and ability and honesty of the board of education, so that there will be a perfect arch supporting the entire structure of education. In this arch the board of education is the very keystone and any defection on its part is certain to cause the weakening, if not the downfall, of the whole.

Of all the elements which might be mentioned as contributing to confidence in the board of education on the part of all the factors which enter into its labors, that of personal uprightness of its members and their clearly defined intention to conduct the schools for the best interests of the children are undoubtedly the most important. Honesty in the conduct of business, fairness toward the teachers and patrons and a rigid policy of opposition to politics and other extraneous influences are all contributing factors that no board of education can afford to neglect.

Membership on a board of education is by no means an easy task. It is rather a heavy burden and a serious obligation which only men should undertake who have a strong sense of service to the community and whose virtues of courage, foresight and openmindedness, and ability to handle large affairs leave no doubt in the mind of the public.

Some recent statistics of the U. S. Bureau of Education indicate that 130,000 new teachers are required annually in the schools of the United States. Of these approximately fifty thousand enter city schools. The normal schools and colleges graduate yearly 35,000 women and men so that 100,000 positions must be filled by teachers who have only a brief professional course during the last year of high school, or have attended an institute or a summer school.



# Superintendents Meet in War Convention

A war convention that foreshadows immense changes in the organization and methods of American schools is the best characterization we can give to the meeting of the Department of Superintendence of the N. E. A., held at Atlantic City, February 25 to March 1. It demonstrated that American educators are not only alive to their duty but are ready to go "over the top" in every activity needed to help the government win the war and that they are "carrying on" in all their work from day to day. The chief topics of the program—the war—kept the members in a more serious mood than is usual at educational conventions and the two thousand members who attended filled the meeting places to overflowing during the entire week. The program was above the average, with a few disappointments, which were the more noticeable because of the generally high standard. The extra-convention work of the Department as shown in committee reports, indicated the broadening effectiveness of the organization in influencing local practices in administration and gave promise of still greater utility in the future. Dr. Thomas E. Finegan stood out, in handling the convention, as the strongest president of many years.

## The Meetings.

The ever increasing number of organizations that have grouped themselves around the Department have not detracted from the interest in the program and the actual sessions of the Department. They have rather added to the value of the Department by broadening the interests of the superintendents and by bringing many executives engaged in teacher training, etc., into contact with the everyday problems of the men who are leading the common schools.

The opening session set the pace for the alertness and responsiveness of the audiences at the subsequent meetings. Mr. J. A. Gantvoort set things in motion with his singing school, that preceded all the sessions. His vigorous leadership caused every person in the great pier auditorium to become alive with patriotic enthusiasm. The three addresses of welcome by Mr. Wm. Bacharach, mayor of Atlantic City, Walter E. Edge, governor of New Jersey, and Dr. Calvin N. Kendall, state commissioner of education for New Jersey, were responded to by President Mary C. C. Bradford of the N. E. A. Mrs. Bradford very appropriately unfurled the association's service flag with its 756 stars, each representing a member in the national service. The chief address of the evening was a patriotic summary of America's fight for democracy by Governor Whitman of New York. Teachers can best perform their duty to the nation in the present need, said Mr. Whitman, by remaining in their present work, so that education will not be hampered thru a lack of trained instructors. Dean Cooley of the University of Michigan closed the meeting with a plea for more trained engineers. He read a letter from President Wilson, urging young men not to interrupt their college studies and advising parents to keep them in college.

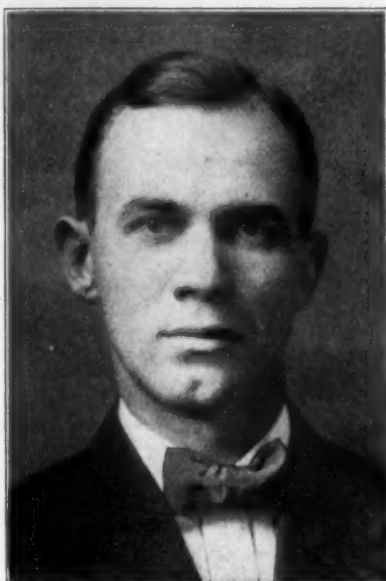
## The Wednesday Meetings.

Centralizing Tendencies in Educational Administration formed the topic of a long session on Wednesday morning. Commissioner Payson Smith of Massachusetts departed from the letter of his subject which was "Limitations of State Control in Public Education," by arguing for greater powers to be exercised by the state.

"The time has arrived," he said, "when the resources of the people must get behind the educational program, when wealth will be taxed wherever it is found for the education of children wherever they are found, for education is an opportunity without which democracy can never be real. Education does not break down anywhere if the people bear the cost."

As the two chief limitations to State control, Mr. Smith cited a consciousness of responsibility which would not make it safe to use any one unit of government, but that State support and control were large, safe and effective. And, secondly, the State should only give effect to those policies which had already been approved by the people.

He contended that the unsolved educational problems should be placed before the nation and that the resources of the nation should be employed toward enabling education to develop for the common good. "Is it too much," he concluded, "for us to lay aside the point of view of place and think in terms of the nation and the nation's needs?"



SUPT. ERNEST C. HARTWELL,  
St. Paul, Minn.  
President-elect of the Department of Superintendence, N. E. A.

Adequate financial support and effective organization are necessary to overcome the weakness in our school systems, of too little opportunity for initiative at the top and too much opportunity for initiative at the bottom, according to Albert S. Cook, superintendent of Baltimore County public schools.

In appealing for the county as the unit for local administration, he said, that, with the proper State aid, an organization which would not be unwieldy could be secured in the county; that in the county unit funds would be distributed for the different needs irrespective of tax-paying limitations and that county boards of education were as practical as those in cities.

In defending the township as the proper administrative unit, R. B. Teltrick, deputy State superintendent of Public Instruction in Pennsylvania, drew five benefits.

"It is conducive to greater local interest in educational matters," he said; "it is more just from the standpoint of taxation; it permits a more favorable adaptation of education to local needs; it brings the people closer together and it is the best means of expressing the desire for local self-government. What we plant in the schools today," he added, "we shall reap in the nation tomorrow."

Dr. George D. Strayer, in speaking of the methods which state departments may employ to stimulate local initiative and increase efficiency, urged frequent conferences on special topics, particularly finance and supervision, to overcome local indifference and to quickly interchange ideas and experiences. Help in providing specific and significant reports in place of dry, generalized statistics are especially desirable. State Supt. C. P. Cary of Wisconsin, in opening the discussion, drew a pessimistic but not inaccurate picture of the results that may be expected from federal interference in state control of education. "Kaiserize" is the expression which Mr. Cary applied to the present tendency toward federal subsidies and supervision.

Leadership in American Education as the topic of the afternoon session, brought forth champions of the private college and of the state university as means of leading American thought during the war. Dr. Alexander Meiklejohn of Amherst College, argued for the private college as the great means of arriving at the truth and thru it preventing social and economic war.

"Must we forever decide questions of right and wrong in human principles by the force of arms or wealth or some other form of external conflict?" Doctor Meiklejohn asked.

"Our President speaks with right when he asks a court of nations, where, with the growth of knowledge, understanding may be given to men for the guidance of nations. How shall different men be judged—by peace or war, by conflict or understanding?"

"It is the issue of faith or skepticism—those who set themselves to find the truth and the right and those who push their own cause as far as they can. This skepticism is voiced in a lack of a compelling sense of the austere authority

of truth. An example of this falseness is illustrated in the homage we pay to cleverness and administrative skill. In hundreds of ways the same recklessness exists.

"How shall our individual problems be settled? Sometimes there is a dividing of labor and capital, of those who have and those who have not, of the proletariat and the bourgeoisie. Here is a cleavage which runs more and more thru the industrial world, sharpened and deepened by the great war. How shall that be settled? Shall it be by war or shall we think our way to mutual obligations? Social and economic conflicts will give way if men will keep faith in reason and truth. The colleges must prevent social war by showing men the way to understanding."

In contrast, tho not in antagonism to Doctor Meiklejohn, Benjamin Ide Wheeler, president of the University of California, defended the State-supported and State-managed institution, asserting "it is rather to be recognized that the privately controlled universities represent the exceptional and the temporary which is indicated in the strong reaction of the public type from the West upon the East."

"The type of American State university," he added, "is a peculiar institution in work, scope and spirit, but what it happens to be just now is due in greater measure to what parents and people want to have taught and want their children to learn than has ever been the case in any institution of higher learning since ever education began to educate and pedagogs to profess."

## Reeducation of Soldiers.

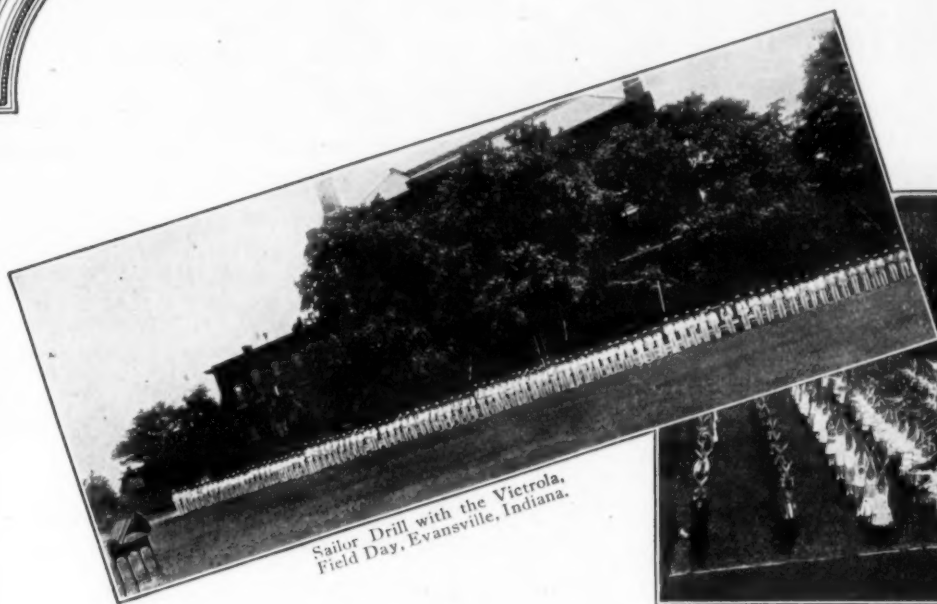
The high point of the convention came Wednesday evening in the form of addresses on the Reeducation of Wounded Soldiers by Major Wilson H. Henderson of the United States Army, and Education During the War by United States Commissioner of Education P. P. Claxton. Major Henderson pointed out that the great problem of reeducating the disabled soldiers will be found in the readjustment of men who have broken away from all the ordinary activities of a broad winning life so that they may again fit themselves to the necessities of industry and commerce, and that they may be restored to their position in the social and occupational life of the nation. It is the purpose of the government to reclaim them from the human scrap heap produced by the war, to overcome the tendency toward pauperism, to remove all physical and mental disabilities so far as this is possible and to give them such vocational instruction as will amply compensate for the disabilities which they may have. Major Henderson described in detail, the reeducation work of the European nations and then discussed in general the principles and methods which the United States Army is employing. He said it is the purpose of the authorities that each man shall have the choice of an occupation within his physical and mental capacity. It is believed that the man must remain in the uniform until he is ready to be self sustaining and that he must not be discharged until a job is waiting for him. The soldier is a ward of the government and the latter is responsible for him until he is restored to civil life fully capable of caring for himself.

Major Henderson pointed to the fact that the training of men involves not only the ordinary problems of pedagogy but also many special problems due to the abnormal psychology of the students and their physical disabilities. It will be necessary to prepare teachers who preferably have themselves been overseas or who wear the uniform of the government. Practically each man is an individual problem because of the great disparity in the previous education and occupations. At present the efforts of the government are centered on three groups, the men who will prefer to enter an agricultural occupation, the men who will best seek commercial pursuits and the men who will enter technical or mechanical trades.

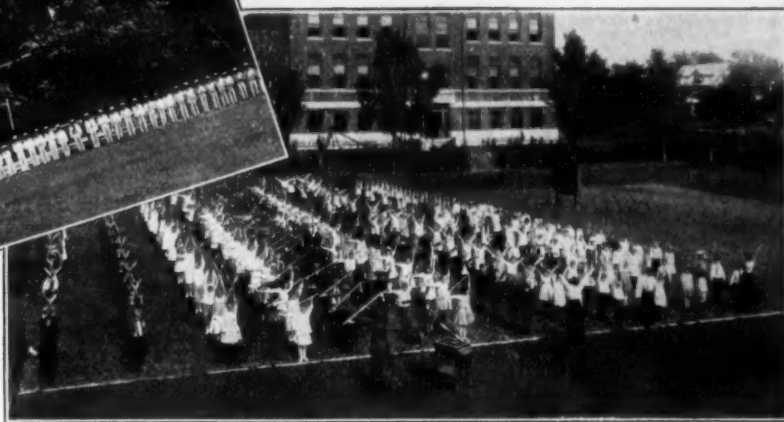
Dr. P. P. Claxton, in his address, pointed to the fact that it is necessary not only to readjust education to war conditions in the matter of courses of study and functions but also to counteract so much as possible the disturbance of normal social and business life due to the war. He argued that at the present time it is the duty of the schools to foresee the conditions which will exist after the war and to prepare in every way to meet the problems of social and economic readjustment which will arise at that time. Mr. A. A. Kennedy, inspector for Saskatchewan,

(Continued on Page 44)





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| 17158      | Dance of Greeting—Danish Folk Dance (From "Folk Dance Music") (Burchenal and Crampton)  |
| 10 in. 75c | I See You—Swedish Singing Game (From "Folk Dance Book")                                 |
| 18010      | Gathering Peascods (From "Country Dance Tunes," Set III) (Cecil J. Sharp)               |
| 10 in. 75c | Sellenger's Round (From "Country Dance Tunes," Set III) (Cecil J. Sharp)                |
| 18356      | Lady of the Lake—American Country Dance (Burchenal)                                     |
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| 17777      | Seven Jumps—Folk Dance ("Dances of the People") (Burchenal)                             |
| 10 in. 75c | Östgötapolska—Folk Dance ("Folk Dance Music") (Burchenal and Crampton)                  |
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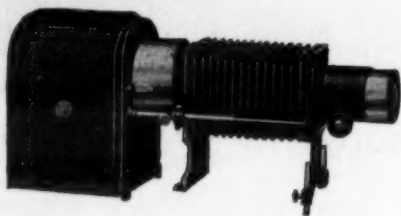
## The Trend of Visual Instruction

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Chicago

(Continued from Page 42)

brought the greetings of Canada and very briefly urged that as we fight together so we should work together and teach together in the great cause of democracy.

The sessions on Thursday morning centered about a group of reports on Economy of Time in Education, on the Reorganization of the National Education Association, and on the betterment of Administrative Conditions in City Schools. The first section of the program which related to economy of time presented rather technical discussions of a report prepared by Supt. H. B. Wilson of Topeka, Kans. It made clear that the committee has found enormous waste of time in the teaching of practically all the common subjects and that as a rule, necessary economies must be introduced to better adjust the schools to the broader courses of study which are being demanded. On the motion of Supt. John D. Shoop of Chicago, the committee will be continued to undertake further studies and to extend the scope of its work during the coming year.

The liveliest interest in the work of the morning was centered in the clear and forceful report of Mr. Wm. B. Owen, on the necessary reorganization of the N. E. A. Mr. Owen presented a printed report which provides that the constitution and by-laws of the association shall be so changed as (a) to restrict the eligibility for active membership to teachers in active service; (b) to set up a co-operative arrangement with all local and state teachers' organizations in order that membership in a local or state body automatically includes membership in the national body, and (c) to so change the business organization that annual meetings will not be an audience but an active, deliberative organization. The plan involves the organization of a so-called house of delegates to be chosen by local associations on the basis of their membership. In the past 83.5 per cent of the active members at each summer meeting have come from contiguous territory and only 16.5 per cent from other states. The meetings, therefore, have not been representative or deliberative. During the discussion of Mr. Owen's report, Mr. Durand W. Springer

who arose, received an ovation testifying to his popularity and work, such as few men in the N. E. A. have ever received. Mr. Springer presented some definite figures on the business meetings of the N. E. A. based on his experience as secretary. He argued that the elections should be placed in the hands of an electoral college, chosen on the same basis as Mr. Owen's proposed house of delegates, but that the remaining business should be left to the active members in open meeting. The Department finally voted to recommend the printing of Mr. Springer's suggestions and the submission of the entire matter to the annual meeting.

Dr. Charles H. Judd, in reporting for the Committee on Publicity, detailed the excellent results which have come from the press work of the committee during the past year. He declared that it is the plan of the Committee to divide the country into ten districts, each in charge of a member and to distribute thru that member such general and special educational information as may seem desirable. Upon his recommendation it was voted to enlarge the committee and to grant it funds for carrying on its work.

Mr. Charles E. Chadsey, in discussing the work of the Committee on Educational Legislation, declared that this body has selected the rules of the boards of education at Minneapolis, Denver and Huron, S. D., as models for large, middle size and small cities and that it is planned to distribute these to boards of education thruout the country. The Committee has done practically nothing to further school legislation but it plans during the coming year to make a study of school codes and to recommend definitely the minimum requirements for model state codes.

Mr. Fred M. Hunter for the Department on Cooperation with School Boards, reported that there is need for the distribution of information on school board organization and general principles of school administration, and urged that the association undertake thru its bulletins to present to boards of education, fundamental facts which will enable members to intelligently attack the problems of school policy and to become

real leaders in the educational work of their communities.

The business meeting passed off more perfunctorily than is usually the case. The members were tired after listening to the discussion of four important reports, and they were more anxious about getting back to their hotels and to lunch than about matters of business.

The Committee on Nominations which was headed by Mr. H. M. Slawson of Bridgeport, Conn., made the following nominations which were unanimously adopted:

President, E. C. Hartwell, superintendent of schools, St. Paul, Minn.

Vice-president, D. A. Thorson, acting superintendent of schools, Newark, N. J.

Second vice-president, J. R. Morgan, superintendent of schools, Trinidad, Colo.

Secretary, Miss Marie Gule, assistant superintendent of schools, Columbus, O.

After Chicago, Milwaukee, New York City and St. Louis had presented invitations for the 1919 convention and Chicago had led by 277 votes, the meeting unanimously voted to go to the Windy City.

Dr. Henry Snyder of Jersey City, presented two sets of resolutions which in part are as follows:

"In this time of stress and anxiety we pledge anew our loyal support to every movement such as the Junior Red Cross and War Savings whose objectives are a triumphant victory and the preparation of our people for the subsequent peace.

"We shall hail the day when every person who claims the protection of our flag will be deeply imbued with real Americanism and with a patriotism that will smile in the face of sacrifice.

"We pledge our best efforts to hasten the day when all our people shall be able to speak, read and write our language and thrill at the sight of our flag.

"We shall renew our efforts to eliminate waste in every form whether of resources, time or energies, and strive toward a civilization that thinks soberly, plans wisely, acts righteously and that has one immunity from the frivolous, the superficial and the artificial.

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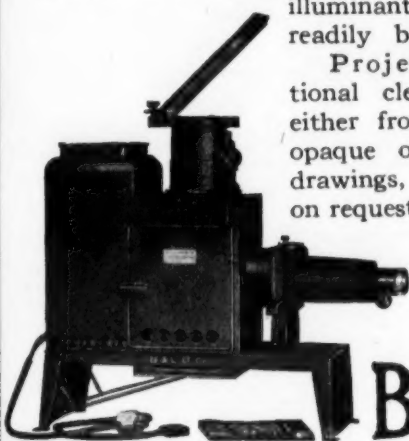
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"We shall do our utmost to banish ignorance and idleness that we may become a nation of intelligent, thrifty, efficient workers.

"In the reconstruction period that lies just ahead, there will be no place for slacking in our ranks, but every teacher must be both able and willing to assume his full share of responsibility in making our school work more vital, that it may most effectively aid in the life processes. To this end we call upon all our people to see to it that there is no relaxing of educational standards and that school work may not be subordinated to other activities.

"We need to intensify our work and transform dull routine into pulsing energy. We call upon our colleges and normal schools therefore, to give us teachers who are, first of all, successful as human beings and who are keen, alert and dynamic. That their work with the children may demonstrate that education is a spiritual process and not a mechanical process.

"We recommend that, the Smith-Hughes law be so amended by Congress as to prevent the possibility of the creation of a dual system of education in any State. All acts appropriating money for the advancement of education in the States should place the administration in the hands of the commissioners of education and the chief school officers in the various States.

"We favor the movement for Americanization conducted and directed by the United States Bureau of Education and urgently recommend the appropriation by Congress of funds in liberal amount in support of this movement.

"In order that efficient teachers may be retained in the service and that an adequate supply of trained teachers may be assured for the future, the urgent need of much larger appropriations for the payment of the salaries of teachers should be strongly emphasized and brought to the attention of appropriation bodies."

A supplementary resolution dwelt on the idea of Americanization and pledging the support of the N. E. A. to Secretary of the Interior Lane in the U. S. Bureau of Education's program of immigrant education.

The meeting closed with the adoption of a resolution commending the New York board of

education for its graceful recognition of the services of Dr. William H. Maxwell in electing him superintendent-emeritus with full salary and bespoke for Dr. Maxwell continued health and activity.

### Thursday Evening Meeting.

Only one speaker scheduled for Thursday evening made his appearance but the men who came unannounced more than compensated the large audience for their disappointment. Dr. John H. Finley brought a message from France and pointed out in soul-stirring language, the desolation which has followed the war thruout the length and breadth of the French Republic. He painted the sacrifices which the French are making so nobly for keeping up their educational system and he urged that American educators be

no less patriotic or effective in keeping American educational institutions at their highest efficiency during and after the war. Congressman D. S. Stephens of Nebraska, departed from the educational aspects of the war to describe in detail the 1,500-mile journey which he took as a representative of the American government at the western battle front. He brought the testimony of his own eyes and ears to the bravery of the French and English and to the horrors and atrocities of the battle zone.

### The Friday Programs.

The national responsibility for the education of the colored people was discussed in all its complexity at the Friday morning session. The meeting brought together a number of nationally prominent experts in the special educational problems of the south.

On Friday afternoon five widely separated topics were discussed. Mr. Frank Irving Cooper of Boston, presented the results of a year's study of the standardization of schoolhouse planning which he has been making as chairman of a committee of the Department of School Administration. Mr. Cooper showed that as an economic measure for the war, it is necessary that minimum standards of planning be adopted and that haphazard and unscientific school building design be prevented. He presented charts showing great disparity in school buildings and argued that there is a measure of efficiency which can be approximated by every new schoolhouse, provided there be proper co-operation on the part of the school authorities and familiarity with the scientific principles of planning on the part of architects.

Mrs. Sarah Louise Arnold, in speaking on home economics as related to war work, argued that it is the duty of home economics teachers to so teach food conservation that the proper balance of food values be maintained for healthful living. Dr. MacCracken presented the work of the Junior Red Cross and urged that the latter emphasize not so much the collection of funds but patriotic service on the part of the children and that all Red Cross activities in the schools be given an educational turn. Mr. George La-



MR. M. L. BRITTAIN,  
State School Commissioner of Georgia. President-elect of the Council of State Superintendents.



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#### The Round Tables.

The most timely of the round tables, which were held on Thursday afternoon, was that of superintendents of large cities. Mr. E. C. Hartwell who presided, gave the conference a turn toward the expression of personal experiences and brought out very clearly in all of the discussions the underlying cause of the present high cost of education and the principles which must guide superintendents in meeting their respective situations. Supt. J. H. Francis of Columbus, Ohio, related the experience of his community which failed to carry a bond issue of three and one-half million dollars in November. He showed that the Liberty Loan and Red Cross drives which immediately preceded the election prejudiced the voters against local expenditures. Supt. John D. Shoop of Chicago discussed the general situation and Mr. Hartwell related his experience in carrying the large bond issue in spite of the competition of state and national requirements.

Dr. George D. Strayer electrified his audience by telling them that they can raise any amount needed for the schools if they will only attack the problem in the right way, by taking the public into their confidence and by convincing them of the actual need of each project as it arises.

Dr. Frank W. Ballou presented a scholarly paper on School Budgets as the most efficient means of controlling city school finances. He argued that five conditions are necessary for efficient budget making. First, there must be accurate knowledge of the amount of money needed to carry on the educational activities of the community. Second, budget making must be considered an educational function to be exercised by the educational authorities, particularly by the superintendent. Third, sufficient time must be taken for gathering all the necessary data to make the budget. Fourth, co-operation is needed and a clear understanding of the duties and powers of all the factors entering into the actual preparation of the budget. And fifth, accurate knowledge is necessary as to the expenditures of the school system for all its respective activities

during a period of years passed. Dr. Ballou pointed to the fact that Boston at present has arranged its school finances on a pay-as-you-go basis so that it has not issued bonds but is meeting from year to year all of its financial needs.

#### The Bureau of Education Active.

For the first time in the history of the Bureau of Education and of the Department, the former came prepared to exercise a measure of the leadership for which it was created. Dr. P. P. Claxton was on hand with six of his specialists and he was ready to make a specific series of recommendations for school policies during the war. In his addresses, Dr. Claxton emphasized especially the need for rooting out illiteracy, for increasing the salaries of teachers and adjusting the financial support to meet war conditions. Dr. Claxton urged the support of the Department for two bills which have been introduced in Congress. One of these seeks to provide \$250,000 for the war Americanization work of the Bureau and the other appropriates \$5,000,000 annually for two years, for special aid to the states in teaching aliens.

Among Dr. Claxton's specific recommendations on educational policies during the war the following are worthy of especial mention:

No curtailment in the education of pupils under fourteen years of age.

Continuing in school during the summer in rural districts of boys under twelve and girls under fourteen.

Continuing in school during the summer in cities of children under fourteen or even sixteen. Agricultural training in especially considered pupils.

The half-time plan of school attendance and employment thruout the year for boys and girls over fourteen.

Readjustment of school on year-around basis, four quarters of twelve weeks each.

Special summer and evening classes for civil service training.

Arrangements of schedules permitting pupils to work on farms.

Special arrangements for students having a definite prospect for service.

Specific preparation at times of individuals for immediate service.

The youth should be urged to take advantage to the full of all educational opportunities.

#### Department of School Administration.

The Round Table of the Department of School Administration, on Wednesday morning, was devoted to a report of progress of the Committee on Standardization of Schoolhouse Planning. The opening paper related to the planning of the Los Angeles high school. It was read by Dr. Edward Shiels, superintendent of the Los Angeles schools. Mr. C. L. Wooldridge, who followed, outlined the need of formulating a standard unit as the basis of all schoolhouse planning.

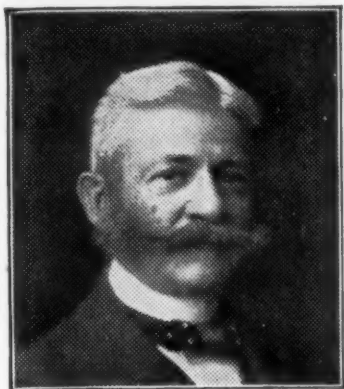
"One of the hardest problems confronting the school architect," said Mr. Wooldridge, "lies in the fact that the methods of teaching are changing so that in 25 years the modern school building of today may be entirely unsuited to the conditions that may then prevail. There are today many millions of dollars tied up in fine fireproof school buildings that cannot be changed to meet future teaching methods. Any modern schoolhouse should be so planned that the size of its rooms may be changed within certain reasonable limits.

"I find that frequently mistakes in schoolhouse planning can be blamed on the failure of the school board to provide the architect with a comprehensive program covering its needs. The superintendent should either be able to lead his board in the preparation of a definite program, or else persuade them to employ some expert to do it properly. This program should be so complete that the architect can not fail to produce a result which is at least satisfactory in its utilitarian features.

"The evolution of the American schoolhouse is wonderful and yet I believe it is trivial compared with what is to come within the next ten years. If America is to hold its place in the industrial world after the termination of the war, it is inevitable that our educational system must be radically changed and our school plant will not meet the future demands in most cases."

Mr. William B. Ittner outlined the rules formu-





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lated by himself for several associations, as the basis of measuring school buildings. Without such rules, he said, it is impossible to compare any cost data or to formulate a trustworthy standard for schoolhouse planning.

Mr. Frank Irving Cooper, who presided, summed up the progress made by the Committee on Standardization.

Mr. Cooper, in whose architectural office and under whose eye the analysis of schoolhouse plans has been undertaken, illustrated his report with lantern projections and with what he termed "candles," a novelty in presentations of the sort. In addition to showing graphic curves and columns he dissected his diagrams and by means of an ingenious holder was able to set up the candles in any desired combination, illustrating groups of structures by instantaneous comparisons.

These investigations of the committee are based on the close analysis of plans of school buildings from eighteen states, high schools, grade schools and special buildings, including junior high schools, technical and trade schools. They were compared individually in the groups, individually without reference to group, and group by group.

Some of the striking things that the investigation of Mr. Cooper's committee has brought out include, first of all, that there is no practical standardization existing today. In many of the buildings as much as thirty per cent of the space is devoted to non-essentials, great halls that are to be used only rarely, or spacious waiting rooms for occasional public use. Considered in groups, Mr. Cooper finds that the grade school is the most uneconomical type of building. Coming into more detailed statements, the speaker noted that the space for sanitation gave surprises all along the line. This has been under the consideration of medical men and boards of health for many years, and one would naturally look here for uniformity. But, as a matter of fact, this has proved to be one of the most variable of all in space allotments.

"One would naturally expect," said Mr. Cooper, "that with all the attention that has been de-

voted to questions of safety from fire by means of standardized stairways, that there would be uniformity here. It is true that a great deal of space is allowed for corridors and stairs, but

there are no regulations apparently that seek to place them at strategical points. The only rule seems to keep them well apart."

Mr. Cooper paid tribute to the modern departments of architecture in the colleges of the land, noting that in buildings of the same class from points as widely scattered as Florida, Oregon, the Mississippi Valley and New York state, the modern schoolhouses have been planned by men who look at their problems in a more scientific way than in former days. It is interesting further to find that the attention which engineers, headed by the American Society of Heating and Ventilating Engineers, have been giving to the schoolhouse is bearing fruit. Provisions for heating and ventilating school buildings at the extremes of the country are comparable.

The discussion was participated in by Mr. James O. Betelle, Newark, N. J.; State School Building Commissioner S. A. Challman, Minneapolis, Minn.; Dr. J. H. Berkowitz, New York City; Commissioner of School Buildings C. B. J. Snyder, New York City; Dr. Geo. D. Strayer, New York City.

### Convention Notes.

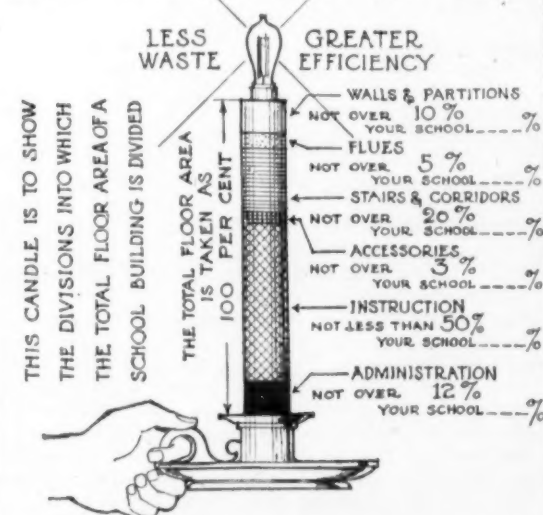
Not the least interesting of the convention side-lights was the breakfast arranged at the Hotel St. Charles by Mr. Tristram Metcalfe of the New York Globe, for the members of the New York board of education and a few prominent educators. Apparently, it worried the New Yorkers not present.

New York City's school troubles were amply aired at the convention. Members of the board of education were on hand, quietly observing possible candidates to succeed Dr. Maxwell. Dr. Wm. H. Allen gave all the adherents of Wm. H. Wirt and the Gary Plan an opportunity to express their views of the failure of the work-study-play scheme. Miss Kate Blake sought to inject some feminist propaganda into the business meeting.

The only serious disagreement of the convention centered on the commission appointed by Mrs. Mary C. C. Bradford to formulate an after-war-education program. Superintendents were not backward in expressing the opinion that such

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COMMITTEE ON STANDARDIZATION OF SCHOOL BUILDINGS

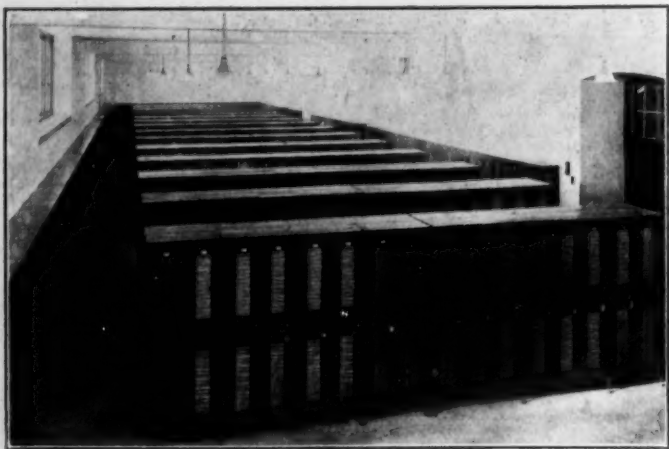


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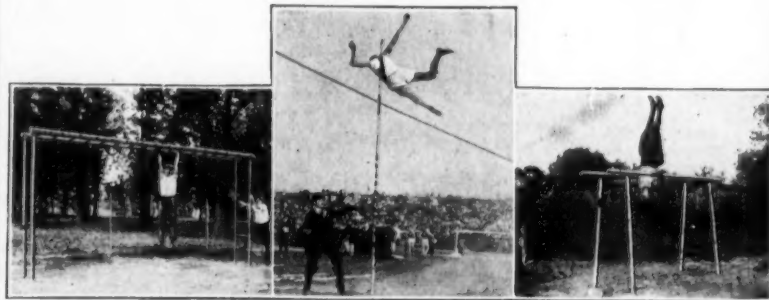
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a program should not be formulated by a group of whom six are college professors and one is a normal school president. A committee of superintendents was finally appointed by President Pinegan to work with the commission after it had been pointed out that the appointment lacked all the essentials of democratic representation of the men and women who are conducting the common schools.

The convention was managed as well as any in recent years. Secretary James W. Crabtree provided all in his power for the convenience of the members. He facilitated the registration by an unusually competent corps of young women. The insistence of the local hotel men's association on its certificate plan of registration caused some annoyance and the distance from the convention hall on the Million Dollar Pier to the registration and exhibit on Garden Pier was found irksome in the absence of rapid transit on the board walk. There was ample hotel space for everyone, and sufficient variety in kind and cost of service to fit any pocket book.

Educational publishers met for the first time as a regularly constituted, full fledged department of the National Education Association. Their program brought out some of the problems of textbook marketing very forcibly. Among the speakers were Supt. M. P. Shawkey of West Virginia, Mr. W. E. Pulsifer of D. C. Heath & Company, Dr. P. P. Claxton and Editor A. E. Winship.

While the exhibits of educational books and supplies were not as extensive as in former years they were ample to give the educators a view of the splendid progress which is being made in all forms of teaching materials. The displays included a variety of new desks, art supplies, maps, projection apparatus, tools, etc.

Among the notable absentees were Frank B. Cooper, Arthur H. Chamberlain, John H. Phillips, Wm. H. Maxwell, Edward Hyatt, Frank B. Dyer and Carlos B. Cole.

The attendance fell below that of the Kansas City meeting. Bruce's Bulletin listed about 2,200 superintendents and other educators and fully four hundred unclassified persons and commer-

cial men. The largest delegation came from New Jersey and Pennsylvania. Michigan and Minnesota were most heavily represented among the middle western states.

### SCHOOL HEATING COSTS.

(Continued from Page 24)

Brady's tabulations, is not quite so economical in final cost.

The following tabulation will give an idea of the relative cost:

Schools	How Heated	Aver. Cost Per Cu. Ft.
Group A—Steam hot blast, using fuel oil.		.0035
Group B—Steam direct radiation, using fuel oil		.0036
Group C—Steam hot blast, using coal		.0028
Group D—Steam direct radiation, using coal		.0029
Group E—Frame and brick buildings heated by stoves, using coal		.0041
Group F—Schools heated by hot air furnaces, using coal		.0036

Group A includes 22 of the largest and newest school buildings containing complete heating and ventilating systems. It is interesting to note that these vary in cost from 2.6 mills per cubic foot in the Greenwood School to 5.1 mills per cubic foot in the Polytechnic high school which has an elaborate equipment of shops and workrooms. Of the 22 schools in the group, nine cost above the average for the group and thirteen below the average. Of the 22, only seven equalled or are below the average for the city while fourteen are above the average.

In Group B, the schools are heated by means of direct radiation without fan ventilation. The group includes only ten buildings, of which five are below the average of 3.6 mills for the group and five are above the average. In the group only three are below the average cost for the city and seven are above.

Group C, which includes buildings heated by steam hot blast, using coal for fuel, makes the best showing of all. The average cost of the buildings is only 2.8 mills per cubic foot. Of the twenty buildings, only five are above the average for the city and eight are above the average cost

### Schools Arranged in Order of Their Unit Cost of Heating.

Group	School	Cost Per Cu. Ft.	Group	School	Cost Per Cu. Ft.
e—Sumner	.....	.0011	a—Benton	.....	.0032
d—Repair Dept.	.....	.0014	c—Karnes	.....	.0033
d—Bristol	.....	.0020	e—Marlborough	.....	.0033
c—Wm. C. Bryant	.....	.0020	f—Madison	.....	.0034
c—Emerson	.....	.0022	e—Henry C. Kumpf	.....	.0034
c—Milton Moore	.....	.0022	c—Kensington	.....	.0034
c—Van Horn	.....	.0022	a—Hyde Park	.....	.0035
e—Fairmount	.....	.0022	e—Askew	.....	.0035
d—Webster	.....	.0023	a—Ashland	.....	.0035
c—Benj. Harrison	.....	.0023	b—Linwood	.....	.0035
c—McCoy	.....	.0024	a—Rollins	.....	.0035
f—Seven Oaks	.....	.0024	c—S. B. Ladd	.....	.0035
c—Swinney	.....	.0025	e—Shiloh	.....	.0036
d—Mt. Washington	.....	.0025	c—Lykins	.....	.0036
c—Northeast High	.....	.0025	d—Adams	.....	.0037
e—Troost Avenue	.....	.0025	a—Bancroft	.....	.0037
c—Clay	.....	.0026	b—Whittier	.....	.0037
a—Greenwood	.....	.0026	d—Public Library	.....	.0037
b—Irving	.....	.0026	d—W. Phillips	.....	.0038
d—Garrison	.....	.0026	e—Hale H. Cook	.....	.0038
d—Martin	.....	.0026	a—Thacher	.....	.0039
c—Central High	.....	.0027	e—F. Willard	.....	.0039
e—Manchester	.....	.0028	a—Allen	.....	.0039
a—Norman	.....	.0028	a—Manual Tr. High	.....	.0040
d—Jefferson	.....	.0028	b—Lincoln Ward	.....	.0040
a—James	.....	.0028	b—Yeager	.....	.0040
c—Franklin	.....	.0028	b—a—Switzer	.....	.0041
c—E. C. White	.....	.0028	e—B. Washington	.....	.0041
a—Westport High	.....	.0029	d—Garrison Ind.	.....	.0041
b—Karnes Annex	.....	.0029	a—Lincoln High	.....	.0042
e—Penn	.....	.0030	a—G. B. Longan	.....	.0042
a—Morse	.....	.0030	e—Jos. S. Chick	.....	.0042
c—Gladstone	.....	.0030	f—Jackson	.....	.0043
b—Hamilton	.....	.0030	a—Faxon	.....	.0043
a—Horace Mann	.....	.0030	f—Douglass	.....	.0045
d—Louis George	.....	.0030	b—Lowell	.....	.0046
a—Garfield	.....	.0031	e—Graceland	.....	.0048
c—Mark Twain	.....	.0031	c—Attucks	.....	.0049
d—Allen Branch	.....	.0031	a—Polytechnic	.....	.0051
b—Woodland	.....	.0032	e—Bruce	.....	.0051
a—Scarritt	.....	.0032	e—Blenheim	.....	.0052
d—Longfellow	.....	.0032	e—S. O. Allen	.....	.0060
c—Lathrop	.....	.0032	e—Blue Valley	.....	.0061
a—Humboldt	.....	.0032	e—Wheatley	.....	.0064

Group A, Steam Hot Blast, Fuel Oil. Group B, Direct Steam Radiation, Fuel Oil. Group C, Steam Hot Blast, Coal. Group D, Steam Direct Radiation, Coal. Group E, Heated by Stoves. Group F, Heated by Furnaces.

\* These schools are equipped with temperature regulation.

of the group. The group includes some of the large, new grade buildings and the two large high schools in the city, the Northeast and the Central High Schools.

The fourteen buildings listed under Group D

(Concluded on Page 51)





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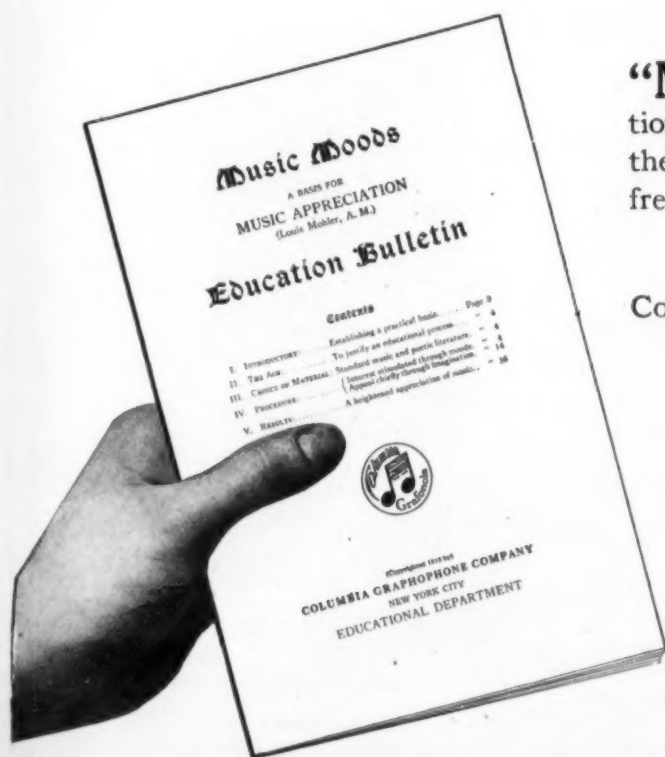
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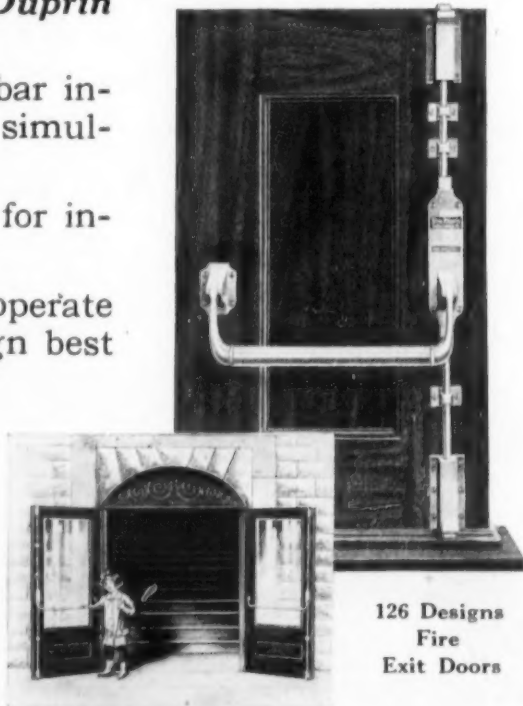
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(Concluded from Page 48)

include the repair department and the public library and make a splendid showing on the average cost of 2.9 mills per cubic foot. Of the group, only seven exceed the group average, while only five exceed the general average for the city. All of the buildings which are above the average, burn semi-anthracite coal.

Group E shows the greatest variation in cost. The Sumner School has an average per cubic foot cost of only 1.1 mills while the Wheatley School has an average cost of 9.4 mills. The experience of Kansas City clearly shows that it is uneconomical to heat school buildings by means of stoves. The cost of the nineteen small buildings in this group is 4.1 mills as compared to 3.1 for the city average. Of the schools in the group, only five are below the city average while seven are above the group average.

Kansas City has only four buildings heated by means of hot air furnaces and the average cost of these is 3.6 mills or .5 mills above the average for the city.

Among the high schools the Central shows an average cost of 2.7 mills, the Northeast 2.5 mills, the Westport 2.9 mills, the Manual Training High school 4 mills, the Lincoln High School 4.2 mills and the Polytechnic Institute 5.1 mills. The three last mentioned buildings have unusually large shops. The difference in cost between the Central and the Northeast schools is due to the fact that the Central has metal frame and sash and there is a greater leakage of air than with wooden sash.

Mr. Brady calls attention to the fact that buildings which have mechanical ventilation, or what is known as the hot blast fan system using coal for fuel, show a less average cost than other buildings. This is attributed to the fact that they are under automatic temperature control which prevents the waste of fuel.

It should be added that an average of nine tons of coal per building is furnished the janitors for home use.

### A CODE FOR SCHOOLROOM ILLUMINATION.

(Continued from Page 38)

N=number of lamps.

L=lumens output per lamp.

E=coefficient of utilization.

A=area of floor or horizontal working plane in square feet.

I=illumination intensity of foot-candles.

$$\frac{N \times L \times E}{A} = I$$

that is, the number of lamps multiplied by the output per lamp in lumens, multiplied by the coefficient of utilization, divided by the area of the horizontal working plane in square feet, gives the illumination intensity of foot-candles.

If the size of the lamps is to be ascertained the computation is made thus:

$$L = \frac{I \times A}{N \times E}$$

To illustrate by an example, assume a room, whose floor (also working plane) is 30 ft. by 18 ft. (9.1 by 5.5 m.), to be lighted by a semi-indirect system from six fixtures containing one lamp each. It will also be assumed that the ceiling is highly reflecting, the walls moderately reflecting, and the illumination intensity desired is 5 foot-candles. The luminous output required of each of the six lamps will be found by substituting the assumed values in the equation, thus:

$$L = \frac{5 \times 30 \times 18}{6 \times 0.30} = 1,500 \text{ lumens}$$

Allowing a depreciation factor of 20 per cent, as representing a well maintained installation the

lumens actually required would be  $\frac{1,500}{0.8} = 1,875$

lumens. If gas-filled tungsten lamps are considered, whose average output under service conditions is 12 lumens per watt, it is seen that a 150-watt lamp in each fixture will give the desired results.

If gas mantle lamps are considered, whose average output in lumens under service conditions is 250 lumens per cubic foot of gas consumed per hour, it is seen that a lamp consuming 5 cubic feet of artificial gas per hour will be satisfactory in each fixture.

The above example is intended solely to illustrate the method of computation. Estimates of

the illumination intensity obtained from an actual installation may also be made by a similar computation.

Suitable switching and controlling arrangements should be made to permit of lighting one or more lamps independently as conditions may require.

The teacher's desk may be illuminated by one of the overhead lighting units, or if necessary, by a desk lamp.

With the usual lighting equipments the distance between the units should not exceed one and one-half times the height of the apparent source of illumination above the working level.

In the diagrams on page 38 are shown some simple graphical considerations of blackboard lighting. In (a) is shown a plan view of a room with windows on one side. Rays of light are indicated by A, B and C in a horizontal projection. These are supposed to come from bright sky. By the application of the simple optical law of reflection—the angle of incidence is equal to the angle of reflection—it is seen that pupils seated in the shaded area will experience glare from the blackboards on the front wall. In (b) is shown the vertical projection of the foregoing condition. It will be apparent from this graphical illustration that by tilting the blackboard away from the wall at the top edge, the pupils in the back part of the room will be freed from the present glaring condition. Whether or not this tilting will remedy bad conditions may be readily determined in a given case. In (c) the effect of specular reflection of the image of an artificial light source is shown by D. In (c) is shown a proper method of lighting blackboards by means of artificial lighting units. This will often remedy bad daylight conditions whether due to an insufficient illumination intensity of daylight or due to reflected images of a patch of sky.

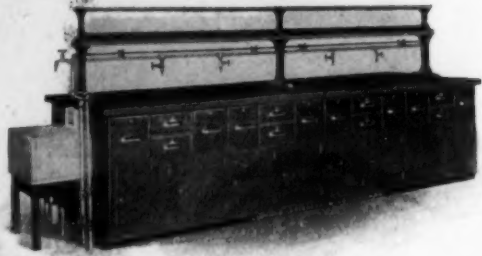
In order to avoid excessive brightness contrast which is trying to the eyes, blackboards should not be placed on a white or highly reflecting wall.

The committee argued that blackboards should be of a minimum size and should be arranged to eliminate glare. No blackboards should be placed between windows. The surface should be as dull as possible and the dullness should be maintained. Glare and the means of obviating it from arti-

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ficial sources are explained by the committee as follows:

The committee suggested that a systematic maintenance should be provided in order to insure against depreciation in the illumination intensity due to burned-out lamps, broken gas mantles, discoloration, etc., and to accumulations of dirt upon the lamps, and upon the surfaces of the reflecting and transmitting media. It is found in practice that carelessness in this respect may easily reduce the effective illumination by fifty per cent, especially in indirect and semi-indirect lighting.

### PERSONAL NEWS OF SUPERINTENDENTS.

Supt. F. M. Hammitt of Mason City, Ia., has been re-elected for the next year.

Supt. W. H. Schulz of Eau Claire, Wis., has announced his resignation, effective at the close of the school year. Mr. W. A. Clark, of the Eau Claire Normal School, has been appointed to succeed Mr. Schulz.

Supt. H. C. Snyder of Stevens Point, Wis., has been re-elected at a salary of \$2,300 a year.

Supt. W. S. Cook of Tecumseh, Neb., has been re-elected for the next year.

Supt. Vernon G. Mays of St. Joseph, Mo., has been re-elected for a two-year term.

E. L. Meyer, superintendent of schools at Geneva, Neb., has announced his resignation, to take effect at the close of the school year.

Wilson Jones, for fourteen years superintendent of schools in Ida County, Ia., died February 5th at Ida Grove, following a surgical operation. Mr. Jones had resided in Ida County for a third of a century and had been superintendent at Battle Creek for twelve years.

Mr. John G. Rossman, superintendent of schools at Stuttgart, Ark., has been re-elected for his eighth consecutive term by a unanimous vote of the board of education. In recognition of his service the board has fixed the salary attached to the office at \$2,400.

Mr. Raymond O. Kent, Supt. of Schools, Lawrence, Kans., has been re-elected by the board for a term of two years. He also continues to hold

the position of professor of education at the State University of Kansas.

Mr. E. E. Worrell, of Carroll County, Virginia, has recently been appointed Supervisor of Rural Schools for the Virginia State Department of Education.

Edward A. Haight, for ten years superintendent of schools at Alton, Ill., died March 3rd in Florida. Mr. Haight was 77 years old.

Herbert D. Updike, for twenty years superintendent of schools at Belleville, Ill., died March 2nd at his home. Mr. Updike was 66 years old.

Supt. J. H. Francis, of Columbus, O., has been granted a six months' leave of absence to act as director of the national school war garden movement. C. H. Fullerton has been appointed acting superintendent during Mr. Francis' absence.

L. C. White of Williston, N. D., has been elected superintendent of schools at Minot.

Supt. R. C. Hill of Colorado Springs, Colo., has been re-elected for a three-year term.

W. E. Sebals, Eau Claire, Wis., for 35 years a teacher, has resigned from educational work to engage in private business. Mr. Sebals was superintendent of schools at Eau Claire for twelve years.

James G. Reynolds, superintendent of the Borough of Richmond, New York City, since 1914, has been appointed to the Borough of Brooklyn. Mr. Reynolds is a Brooklyn man, having lived in that district for many years.

Supt. C. W. Schwede of Grand Rapids, Wis., has resigned.

W. G. Balcolm has been elected superintendent of schools at Bemidji, Minn., to succeed W. P. Dyer, resigned.

Supt. J. J. Keyes of Nashville, Tenn., has announced his resignation, to take effect at the close of the school year. Mr. Keyes will return to teaching.

Prof. S. K. Henry, of Youngwood, Pa., 71, has returned to teaching after a number of years spent in retirement. Prof. Henry who is a former veteran teacher and a Civil War veteran, left teaching some years ago because of age and failing health. He returns at this time to fill a

vacancy in the teaching corps due to war conditions.

A department of educational reference and research has been created at Indianapolis, with Mr. Murray Dalman as director. Mr. Dalman was formerly assistant principal at Emmerich Manual Training High School.

Charles F. Towne, assistant superintendent of schools at Providence, R. I., has been appointed Director of Immigrant Education for the state of Massachusetts. He has filled the office of assistant superintendent since 1913.

Supt. David A. Ward of Mannington, W. Va., has been given an increase in salary. Mr. Ward is serving his seventh year at Mannington.

The Council of State Superintendents of the United States has elected the following officers for the coming year:

President, M. L. Brittain, Atlanta, Ga., secretary, Edith K. O. Clark, Helena, Mont.

Supt. H. M. Cressman, of Atlantic County, N. J., who has been elected president of the New Jersey Teachers' Association, has been for twenty years a teacher, principal and superintendent. Mr. Cressman is a graduate of Lehigh University and of Muhlenberg College, and has served as teacher and supervising principal in Bucks and Atlantic Counties. At present he is superintendent of schools in Atlantic County.

Supt. F. W. Simmonds, of Lewiston, Ida., has been unanimously re-elected for a three-year term, and his salary increased from \$2,800 to \$3,500 a year, beginning July first.

Dr. Ambrose L. Suhrle, for a number of years a member of the faculty of the School of Education, University of Pennsylvania, has been called to the principalship of the Cleveland, Ohio Normal Training School.

Dr. Leonard P. Ayres, director of the educational department of the Russell Sage Foundation has been commissioned a Lieutenant Colonel in the National Army. Colonel Ayres is head of the statistical section of the executive division of the general staff. Previous to his present commission, Dr. Ayres headed a similar division in the Council of National Defense.



# "The Biggest Consideration Before the Educational World"

Hear what State Superintendent Horace Ellis, of Indiana, has to say about Physical Education.



Indianapolis, Ind.,  
Jan. 30, 1918.

Mr. O. W. Douglas,  
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My Dear Mr. Douglas: Physical Education is just now the biggest consideration before the educational world. We have needed physical education all these years. Its importance now is paramount. This department not only favors all the recommendations you make concerning the equipment of playgrounds with athletic facilities but wishes to go on record as very much in favor of having well ordered courses in physical education established in all our schools.

Respectfully,  
(Signed) HORACE ELLIS  
State Superintendent of Public Instruction.



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Supt. F. W. Simmonds of Lewiston, Ida., in a brief report, has given a comparative statement of enrollments of the first semester during the past five years in both the grade and high schools. Mr. Simmonds shows that there has been an increase of 36 per cent in the grades and 84 per cent in the high schools, while the school census indicates only a slight increase in population.

The total enrollment in the grades for the first semester was 1,050 in 1913-14; 1,218 in 1914-15; 1,288 in 1915-16; 1,353 in 1916-17; and 1,395 in 1917-18. Of the four grades having the largest enrollment in 1913-14, only one showed a loss in 1917-18 while three had distinct gains. The remaining grades showed similar gains in 1917-18 while only one fell below its original enrollment in the period from 1913-1918.

Five years ago no grade above the fifth had an enrollment of over one hundred pupils which decreased to 21 in the senior year. At present every class to the tenth year has passed the one hundred mark, with 69 in the senior class. This is an increase of 84 per cent in the Junior High School. In the Junior High School there was a total enrollment in the first semester of 1913-14 of 206; in 1914-15, 292; in 1915-16, 319; in 1916-17, 348, and in 1917-18, 365. The class having the highest enrollment made consecutive gains in each of the five years. Of the two remaining classes, one had three losses and the other six losses during the period, but eventually went beyond the original enrollment.

In the Senior High School there was a total enrollment of 121 in 1913-14; 138 in 1914-15; 156

in 1915-16; 190 in 1916-17 and 236 in 1917-18. Of the two classes which had similar enrollments in 1913, one had six losses and one seven losses, with an eventual gain above the original. The remaining class with a low figure, had seven losses but the last four years showed a gradual gain.

The per capita cost of teaching was \$21 in 1913-14; \$18 in 1914 and 1915, \$17 in 1916 and \$18.75 in 1917.

The schools of Ogden, Utah, under the direction of Supt. Henry C. Johnson, have witnessed a number of innovations and improvements during the past year. One feature of the work was the examination of the school children at the opening of the fall term, by regular doctors and dentists. The work was followed up in the homes by the nurse.

A bond issue of \$200,000 was voted to provide for the enlargement and improvement of the school plant. A new Junior High School was erected, two grade schools were completely remodeled and an addition of eight rooms was built at the Lewis grade school and the Junior High School. In the Senior High School a cafeteria was installed where lunches are served at cost.

The school board has been reorganized as a committee of the whole, giving the superintendent the power of recommendations in all matters pertaining to the schools.

Supervised study has been introduced in the high school, supervisors of special subjects have been employed, and a system of kindergartens inaugurated. All students in the Junior and Senior High Schools are drafted for summer service and are called to perform such work as they are capable of during the summer months. The course of study has been revised and textbooks have been selected for five years' use.

The Minneapolis board of education has announced the temporary suspension of the series of monographs on administrative topics. The members of the supervisory corps expect to continue the series when educational and social conditions have returned to normal. At present the work of the schools has centered in war activities,

particularly Red Cross work, the sale of Liberty Loan Bonds, Thrift Stamps, food conservation, war gardens, etc.

Supt. B. D. Purcell, of Wayne County, Georgia, has issued an interesting announcement of some of the important events which have been carried out in the schools of his county. The schools have been provided with copies of a book on thrift, prepared by Prof. Park of the Georgia Normal and Industrial College. The book is intended for use in the schools and communities of the county and is utilized by teachers as a classroom text.

A series of motion picture entertainments of an educational character were given in the county during the week of March 4th, to which children and adults were invited.

On March 23rd, a joint school fair and county commencement program was held which included recitation and declamation contests, addresses, song contests, presentation of certificates, picnic dinner and a number of athletic contests.

Representatives from six of the leading schools of the Red River Valley of Minnesota held a conference at Crookston during Farm Crops' Show Week for the purpose of discussing the question of teachers' salaries. The consensus of opinion favored leaving salary schedules about as they are at present, but grant a bonus to the teacher who remained thru the school year.

The conference did not favor high school boys enlisting before their graduation, nor did it believe that pupils should be excused from school for work except for very good reasons.

Mr. H. L. Dahlen of Thief River Falls acted as chairman, and James M. Hanson of Crookston was made secretary. Members present were: H. O. Erickson, Detroit; T. F. Haynes, Thief River Falls; H. W. Robertson, Argyle; T. A. Green, Stephen; Lewis Lohn and L. S. Hancock, Fosston; A. J. Sauve, Dr. Dampier, S. M. Sivertson and G. H. Sanberg, Crookston.

Sigourney, Ia. The board has ordered that there shall be six days in each school week from now until the close of the year. The plan saves three weeks of school and permits the pupils to engage in farm work early in the spring.

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A four-day vacation instead of a ten-day vacation has been ordered for the schools of Washington, D. C. The reduction of the holiday period will make it possible to make up time lost through coalless days.

That war decreases school attendance is shown by a report prepared by Peter A. Mortenson, assistant superintendent of schools of Chicago. Mr. Mortenson shows that there were 6,139 teachers and the number of classrooms was increased by 221. In 1915 the number of teachers was 6,402 and the classroom increase was 263. In 1916 the number of teachers was 6,459 and the classroom increase was 47. In 1917 there were 6,548 teachers and the classroom increase was only 89.

The records show that since the war has made itself felt in America, there has been a marked decrease from the normal increase in school attendance. Mr. Mortenson does not advance any reason for this condition.

The entire school system of the city of New York is to be reorganized on the six-three-three plan. A committee of eight superintendents has been appointed to make a study of the plan for the board of education. The majority of the committee has already decided to recommend the adoption of the plan and possible locations for buildings are considered.

Kane, Pa. At the direction of Supt. H. O. Dietrich the schools observed Washington's birthday by a special song program.

The school board and the faculties of the Michigan Agricultural College have entered into an agreement through which university students will teach in the classrooms of grade and high schools of East Lansing, Mich. The East Lansing schools will become the training school for the university and rural teachers will be permitted to take summer courses at the university.

New York, N. Y. The school authorities have eliminated nine German books which were found to contain German propaganda.

Wage earning on the part of children enrolled in the high schools and in the upper grades is more extensive than is usually suspected by school authorities. Findings to this effect have been made in a recent study instituted by Supt.

Chas. S. Foos in two high schools and eleven elementary schools of the city of Reading, Pa. Mr. Foos found that in addition to 1,100 children enrolled in the continuation school, 997 are employed at some gainful occupation in addition to attending classes during the full school day. Of these 614 are in the two high schools and 383 in the grades. They work a total of 17,761 hours weekly, or an average of nearly eighteen hours, and earn \$2,132.98 each week. They are employed in factories, stores, offices, homes and are engaged in a great variety of occupations.

Only five per cent are working to remain in school; 43 per cent state that they work to help their families; 39 per cent seek spending money; and eight per cent are saving for higher education. Mr. Foos concludes that the figures show a decided trend toward co-operative study-work schemes of the most flexible type.

He adds: The stereotyped co-operative school has pupils in several industrial occupations and has the work for these pupils more or less correlated with their occupation. The more popular co-operative school of the future will be such, where the pupil may engage in any one of a hundred or more occupations and attend the regular school without losing time. I believe that this method of education will gain in favor especially if the war continues, and there is an increasing demand for workmen.

With the multiplicity of demands now being made upon the public, it is necessary to focus the attention of the people to the work being done in the public schools. Each community should know her schools as it knows nothing else and should be made to realize that they are not merely classrooms for children but institutions having a vital relationship to the affairs of adults. The schools of Kane, Pa., under the direction of Supt. H. O. Dietrich, held a school visiting week from March 4th to 8th for the benefit of the school patrons and the general public. The schoolrooms were opened for inspection and the classes demonstrated the actual work performed from day to day. The visiting week aimed to give the public an idea of what the schools are doing and to provide an infor-

mational study on subjects, progress of pupils, teaching ability and lines of special excellence.

Supt. Charles E. Chadsey of Detroit has recommended that the elementary school course be cut to six years and that junior high schools be established.

Supt. Fred M. Hunter of Oakland, Cal., in a recent circular letter to the teachers, has called attention to the original purpose and the benefits to be derived from visiting days. The visiting day was intended to give the teacher a chance to inspect the work of other schools where the same grade of work is done, and to bring back suggestions and improvements which may be successfully undertaken in her own classes. He urges that teachers make the visiting day a means of professional inspiration and that they refrain from fault-finding and unwise criticism. These days are given to the teachers for good use and they must be made an asset to the schools they teach.

J. W. Torreyson, president of the State Normal School at Conway, has been elected superintendent of schools at Fort Smith, Ark.

Supt. Leon Tyler of Traverse City, Mich., has resigned to enter Y. M. C. A. work in France. Supt. Tyler had been at Traverse City seven years.

Supt. H. C. Snyder has been re-elected head of the schools at Stevens Point, Wis., with an increased salary of \$2,300 per year.

The public schools of Oakland, Cal., thru the teachers and pupils are emphasizing patriotism and war activities. During the last semester of the school year the schools will concentrate their efforts on three or four outstanding activities. The purpose of the teachers will be to maintain a gradual sustained effort thruout the term thru the promotion of the war savings plan, the Junior Red Cross, community lessons issued by the government and practical classroom lessons on war topics. The patriotic activities are in charge of a special committee of six, with Superintendent Emeritus J. W. McClymonds as chairman. Supt. Fred M. Hunter is giving his co-operation and active support to the plan.



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No. 43—St. Louis Desk.

## Superior Seating Company

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PATENTED Aug. 22, 1916

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All five adjustments are very simple and can be operated by the child under the supervision of the teacher.

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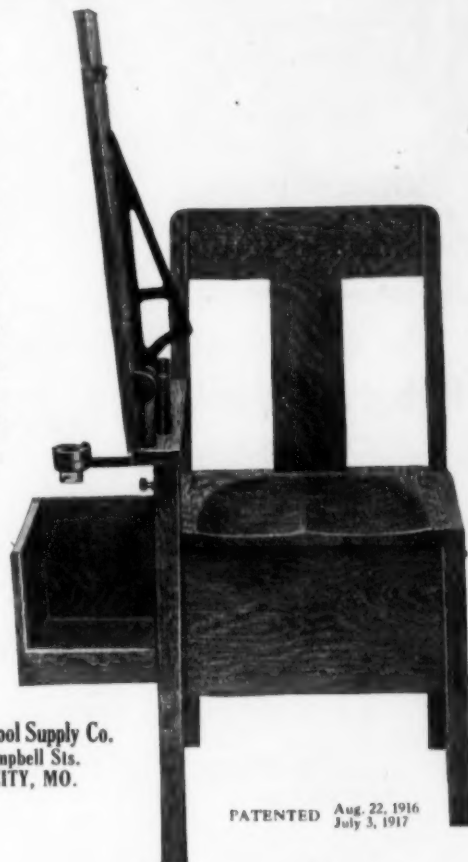
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July 3, 1917

**EMPIRE SEATING CO., Inc.**

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## SCHOOL BOARD NEWS

### RETIREES AFTER LONG SERVICE.

William O. Marshall, for 41 years a member of the board at Lancaster, Pa., on February 7th, retired from active service. Mr. Marshall who has reached the ripe age of 78, relinquishes the duties of the office in order that the burden might fall on younger shoulders.

William Marshall was born in Philadelphia, October 12, 1840, and received his education in the schools of Lancaster. He has given to the school district for 41 years his best time, judgment and discretion for the uplift and betterment of the children of the city. Mr. Marshall served as treasurer of the district for 21 years, was president for three years, and served on all the important committees of the board.

After the acceptance of the resignation, the board adopted a resolution expressing its appreciation of the long service of Mr. Marshall and its regret at his departure.

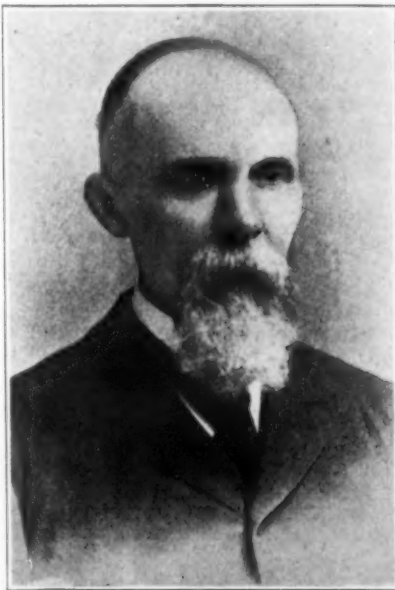
Seattle, Wash. The board proposes a general reorganization of the entire building department. An architect is to be employed who will devote his entire time to the services of the school district, design and prepare plans, and superintend the construction of school buildings.

Chicago, Ill. High school principals are urging a return to the "no permit" rule established a year ago but suspended by the board. The rescinding of the rule has resulted in seriously overcrowding some schools where students have been transferred by permit. During the present year there have been many hundred more permits issued than ever before, and in most cases the requests have been granted. In the case of

already overcrowded schools, the district superintendents have refused to grant permits except upon a special order from the superintendent of schools.

### AMONG BOARDS OF EDUCATION.

Some method of removing all question of the legality of the small board of Detroit will be undertaken by the Corporation Counsel and former Judge A. C. Angell, inspector of the board of education. Recently when a market was desired for school bonds, it was found that the law creating the small board specified it was to apply to cities of 250,000 inhabitants or more, comprising a single district. This applied to Detroit when passed but when the small board was elected, Detroit had taken by annexation, other districts. The result has been the holding up of the sale of \$1,000,000 worth of these bonds.



WILLIAM O. MARSHALL.

The Civic Bureau of the Association of Commerce of Fond du Lac, Wis., has taken definite action to reduce the size of the board from 24 to 7 members and to have the commissioner elected by popular vote instead of by appointment of the mayor. The question of changing the board will have to be voted upon at a special or general election.

Two Kansas Schools, the Kansas Agricultural College and the Manual Training Normal School, have attacked the coal problem of the domestic consumer in a new way. The Agricultural College teaches home-owners how to use coal to the fullest advantage while the Normal School has gone farther and conducts a school for janitors and furnace tenders. At these classes, lectures are given on stoking methods and use of different coals, and students observe practical exhibitions of various methods of firing.

The school board of Fitchburg, Mass., has passed a resolution admitting the public to all committee meetings. In the past private meetings of the finance committee were held.

No interest on unpaid rents for school land amounting to nearly \$1,000,000 will be paid the Chicago school board until the courts demand it, according to a decision of the ten lessees of school property given out on February 21st. Several of the lessees intimated that if the board would give them a ninety-nine year lease without a re-valuation clause, they would present the board with a bonus which might be approximately the amount the unpaid money has earned during the two years. The list of tenants includes nine business firms.

A report recently presented to the Buffalo board by F. E. Shapleigh and his associates of the Public Education Association, shows that school children who are slow in school are costing the taxpayers a large sum of money while those who are alert and eager save hours of school time which have an actual money value.

The report shows that 23 per cent of the children are of normal age and progress, 28 per cent are older and slower, and 44 per cent are slower than normal. The time lost by slow pupils represents the sum of \$823,769 while the hours saved will average \$16,259 a year.



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Dustless Crayon



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Among the reasons given for slow progress are changes from school to school or from city to city, late beginnings and half-time work.

The Common Pleas Court of Philadelphia, on February 20th, awarded to P. J. Hurley, builder of the Sharswood School, the full amount of his claim, together with interest, or about \$4,480.50. During the hearing it was alleged that the architect and superintendent of school buildings was responsible for the delay in the construction and for defects in certain features of the structure.

The board of education of Pittsburgh, Pa., has increased the wages of 87 janitors' helpers, ranging from 13 to 50 cents a day. The increases mean an additional outlay in wages of \$6,193.80.

An investigation of the school affairs of Philadelphia has been ordered by the local board of education and a committee has been appointed to study especially the finance and the school organization.

Grand Rapids, Mich. The board has adopted a rule providing for the creation of a number of new departments including census, attendance, statistics and educational measurements. The work of these departments will be in charge of an official to be known as an assistant superintendent.

Lincoln, R. I. The board has granted Supt. J. L. Smith permission to eliminate any books which are found to contain anti-American propaganda.

President Edwin Wolf of the Philadelphia board of education has urged in his annual report, a reduction in the supervisory force and a simplification in the school organization, in the direction of economy. He proposes that the number of associate superintendents be cut from five to three, that the West and South High Schools be reorganized under one head, and that the Normal School and the School of Pedagogy be merged into one institution.

New York, N. Y. The Board of Education has revoked its former policy of making women alone eligible for principalships in primary schools where girls only are enrolled. Men will be appointed to girls' as well as boys' schools.

The board of education at Iola, Kansas, dedicated on March 7 a new high school building

which was erected during the spring and summer of 1917. The building houses a complete elementary and high school.

The Seattle board of education has created the office of business manager and has formally elected Mr. Reuben W. Jones as the first incumbent. Mr. Jones has been secretary of the board for many years and his duties have grown so much in number and scope that a definite statement of the functions of the office have become necessary.

The school board of Buffalo has adopted the following salary schedule for the business department:

Business manager, \$5,000.  
Secretary to the board of education, \$3,000.  
Secretary to the superintendent, \$3,000.  
Director or supervisor of research, \$3,000.  
Chief clerk, \$2,000.  
Auditor, \$2,500.  
Payroll clerk, \$1,900.  
Purchasing agent, \$1,700.  
Superintendent of janitorial service, \$2,000.  
Manager of stenographic department, \$1,300.  
Minimum, \$1,200; annual increase, \$100; maximum, \$1,500.  
Stenographer and clerk to the board, \$1,300.  
Minimum, \$1,200; annual increase, \$100; maximum, \$1,500.  
Stenographers—Minimum, \$900; annual increase, \$50; maximum, \$1,200.  
Operator for tabulating machine—Minimum, \$600; annual increase, \$50; maximum, \$900.  
Switchboard operator, \$700. Minimum, \$600; annual increase, \$100; maximum, \$900.  
Messenger, \$480.  
Storekeeper—Minimum, \$1,200; annual increase, \$100; maximum, \$1,500.  
Assistant storekeeper—Minimum, \$900; annual increase, \$100; maximum, \$1,000.  
Chauffeur, \$1,000.  
Helper, \$720.  
Salary of attendance officers—Minimum, \$1,000; annual increase, \$100; maximum, \$1,500.  
Custodians of high schools—Minimum, \$1,500; annual increase, \$100; maximum, \$1,800.  
Porters of high schools (312 days, eighteen porters), \$3 day.

Charwomen of high schools (59 for 276 days), \$2 day.

For janitors of grammar schools, schedule submitted to council on December 12, 1917.

The school board of Pittsburgh, Pa., has made reductions in its estimates for the next year totaling \$19,016. The board has removed from its estimates all plans for new centers in domestic science, manual training and kindergartens.

School children in Georgia will receive approximately \$3,200,000 from the state next year, or a per capita of \$3.99. The amount is an increase of half a million dollars, or a per capita increase of 64 cents.

Attorney General McGhee of Ohio has rendered an opinion in which he holds that teachers are entitled to full pay for time lost thru the closing of schools because of a shortage of fuel. Under the ruling teachers will receive full pay for the time lost thru coalless days.

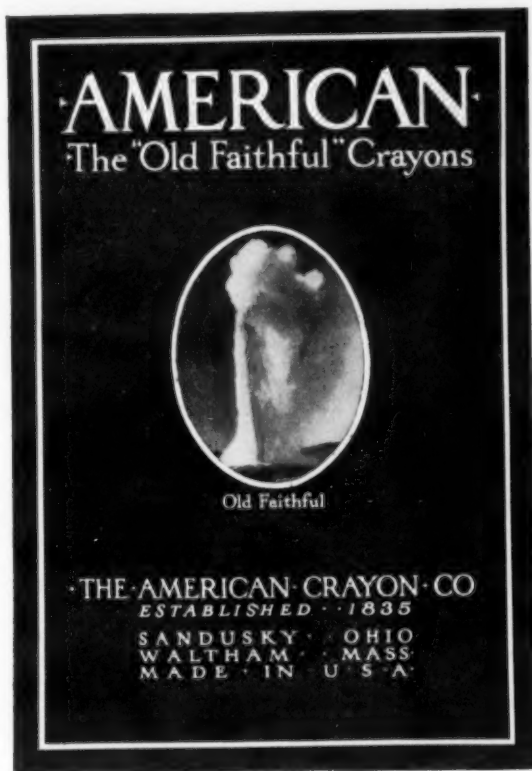
The school board of Brazil, Ind., has discontinued the enforcement of rules against married women teachers for the duration of the war. The change permits two married women to teach while their soldier husbands are in service.

John A. Guilford, assistant business manager of the Chicago board, on February 23 entered on his fiftieth year of continuous service for the board. Mr. Guilford entered the employ of the board in 1869 as an office boy. He became assistant business manager and is now in charge of school supplies.

The Chicago board of education has decided to economize on community centers, evening schools and other forms of educational work built up in recent years. It has been decided that only self-supporting community centers be opened, that evening schools shall limit their sessions to three nights weekly, and that vacation schools be conducted only at schools where playgrounds are attached and where supervisors and assistants are provided thru outside assistance. The buildings opened will be used for food conservation and Red Cross branches and will be known as "home defense centers."



*No matter what you  
buy in crayons see  
that it bears this  
trade mark*



*The various kinds of  
crayons are dis-  
tinguished by  
numbers*

#### JUNIOR RED CROSS ACTIVE.

Millions of school children have been enrolled in the Junior Membership Red Cross Drive which began on February 12th. These children represent a large percentage of the 22,000,000 pupils in public, private and parochial schools and are an addition to the 24,000,000 adult members gained before the Junior Drive.

With virtually one-half the population of the United States interested in the Red Cross, thru contributions or actual work in chapter and auxiliary branches, it is evident that a mighty part in this war is possible for this humanitarian agency and that the school children will play an important role in its affairs.

Children in the schools have a large influence in placing Red Cross activities before their parents and other members of the family. Especially is this influence valuable where citizens of foreign extraction are concerned. The children are easily reached in the schools where they assemble daily, whereas parents can rarely be assembled in any considerable numbers for patriotic propaganda.

With the coming second war fund drive in the near future, the Red Cross will have the benefit of the children in the Junior department. With a vast adult membership and with the channels into homes made direct thru the Junior School auxiliaries, the next campaign should be very successful.

The distress in Europe in the wake of the war will be relieved far more quickly and effectively because of the Junior Red Cross. Hospital supplies, knitted goods and a great variety of other articles will be increased greatly thru the assistance given by the children. A contribution of only one article by each of the 22,000,000 school children would greatly facilitate the amount of relief work which could be done. A valuable lesson to the children is the emphasis upon perfect workmanship. All articles must reach a certain standard in order to be accepted. Surgical dressings should be made only by high school students under approved conditions, while small children can make articles for refugees and for the use of convalescents in hospitals.

Many interesting ways of using boys in Red Cross work have been reported. Altho boys have not been very largely attracted to knitting and other domestic phases of the work, they have been found efficient in making packing boxes, erecting shelving and doing odd jobs around the workrooms. They have also assisted in raising junior funds thru entertainments and service to the public.

It is becoming increasingly apparent that the Junior Red Cross Auxiliary is to become the center of all school patriotic activities and that the war savings committee, the food administration and the United States Department of Agriculture are looking to the Junior Red Cross to help them. The work for the war needs of the country can be carried on without interference with the progress of education, in the opinion of Philander P. Claxton, United States Commissioner of Education.

#### 100,000 THIRD LIBERTY LOAN MEETINGS IN SCHOOLHOUSES.

Plans to Carry Message to All Rural Districts on Night of April 12.

The message of the third Liberty loan—its meaning, purpose, and operations—is to be carried to rural residents of the United States thru approximately 100,000 schoolhouse meetings on the night of April 12, six days after the official opening of the drive. It will be the first time in history that all rural schoolhouses will have been given over on the same night to a national Government meeting.

A letter sent by Secretary McAdoo to all rural school directors in the Nation, asking them to co-operate with their local Liberty loan organization in arranging Liberty loan rallies for that night has produced a flood of favorable responses. Not a single school official has declined to assist in making the plan a success.

#### Local Committees to Co-operate.

Local Liberty loan committees will co-operate with the school officials in arranging the meetings. Speakers who understand all of the details concerning the loan campaign will be provided. Schoolhouse bells will be rung, bonfires will be lighted in schoolhouse yards, patriotic songs will

be sung, and other devices used to enliven the meetings. Explanatory literature will be distributed, and the hope of the committees is that the meetings will result in a thoro understanding of the vital features of the loan by all who attend.

Among the persons who have accepted invitations to campaign in behalf of the third Liberty loan were William Jennings Bryan, former Secretary of State; Dr. L. S. Rowe, Assistant Secretary of the Treasury; Gaylord M. Saltzgeber, United States Commissioner of Pensions; Charlie Chaplin and William S. Hart, motion picture stars; Miss Katherine Synon and Mrs. Hallie Linn Hill of the woman's Liberty loan committee; and Mrs. Cora C. Lewis, of Kinsley, Kans., who formerly was a member of the Kansas State board of administration of public schools.


#### High School Contests for the Working Reserve.

That the war is revolutionizing high school athletics in the Chicago high schools is evident when it is pointed out that athletic sports are giving way to forms of contest that have in them an element of utility looking toward the successful prosecution of the war. In the Chicago high schools comparatively few of the 15,550 boys are of draft age, so that their status as students will not be affected by army service. Most of the athletes in the upper grades are eligible for service in the boys' working reserve and more than 2,000 have enrolled for service early in the spring.


One of the significant agencies making for big reductions in the high school athletic ranks is the table of farm craft drill and contests prepared by Mr. Dudley Grant Hayes, superintendent of school extension and director of the Boys' Working Reserve in Chicago. The drills and contests take the place of much of the athletics. They read as follows:

1. Harnessing a team and hitching to a wagon.
2. Unhitching and unharnessing the team.
3. Driving contest.
4. Assembling a wagon for three uses.
5. Greasing a wagon.
6. Greasing and oiling a cultivator.
7. Greasing and oiling a mowing machine.

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For Teacher



For Pupil

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Wilson Place and Hartlett Avenue  
Milwaukee, Wis.  
June 12, 1916.

GEORGE A. CHAMBERLAIN,  
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Gentlemen:  
We are using your self-closing inkwells and are very much pleased with them. The teachers who have been using them are Miss A. Snow, Mr. L. F. Baker and Miss H. Reynolds.

Very truly yours,  
GEO. A. CHAMBERLAIN.

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SUPERIOR WIS., HIGH SCHOOL

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By their use the temperature is uniform throughout the building; the pupils sitting near the windows are as comfortable as the rest.

They last as long as your building, but the saving in coal will pay for them in a short time. This should appeal to the man who pays the bills.

Particulars and estimates cheerfully furnished.

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Home Office and Factory: - Grand Rapids, Michigan

OUR BRANCH OFFICES FROM COAST TO COAST PLACE OUR SERVICE WITHIN REACH OF ALL.

8. Harnessing and hitching a team to a cultivator.
9. Cultivating contest, down and back two rows of dummy corn.
10. Plow contest, straight driving and turning around.
11. Corn planter contest.
12. Tractor driving.
13. Hitching up and driving three and four horse teams.

"Most of these contests will be against time," said Mr. Hayes, in announcing the plan. "Reasons for this are that there will not be equipment enough for the boys to work simultaneously as in a track race, and, again, better efficiency can be developed when the boys are working alone against time and have no opportunity to observe what their rivals are doing."

"I look for a far-reaching effect on school athletics as a result of this war training that the boys are going thru. One of these effects undoubtedly will be of the kind that critics of school athletics have long sought for, namely, a readjustment and extension of the physical development among all the boys and less interest in individual star plays. This will be along the line of what is known as army and navy setting up and may be expected to characterize the new athletics that will follow the war."

#### THE WAR AND THE SCHOOLS.

A school for artisans and mechanics of the aviation department of the army will be conducted in Boston this summer. The school will be in charge of Mr. Robert O. Small of the State Board of Education and will have accommodations for 1,500 soldiers. Barracks and courses are to be provided by the government, teachers by the city schools and Wentworth Institute and the expenses will be borne by the government.

The school board of New York has organized eleven classes in radio and buzzer work for drafted men. The work will be in charge of Mr. Henry E. Jenkins, director of evening schools.

Chicago, Ill. Seven high schools, the board of trade, Armour Institute and Lewis Institute are being used by the signal corps for the training of men in radio and buzzer work.

New York, N. Y. The board has formed 25 classes for the training of skilled ship builders who will act as instructors to workers. The classes cover a period of ten weeks.

The University of Chicago is offering 28 special war courses to students. Each study is planned with the aim of contributing to a more intelligent understanding of the war and to prepare for greater efficiency in the performance of patriotic service.

Attorney General Smith of Minnesota has ruled that public schools must respond to the war-time demands of the government even to running into debt to provide special courses for drafted men. The attorney general holds that a school district cannot increase teachers' salaries if such action will mean expenditures in excess of the funds voted.

Rural and city schools of North Dakota recently undertook a state wide crop and labor survey under the auspices of the state and federal departments of agriculture. In the rural districts the school children circulated 78,000 questionnaires among farmers to ascertain their labor needs for the coming season. In the cities, the students reached more than 20,000 in their efforts to find out the amount of labor available.

#### WAR SAVINGS SOCIETIES.

War savings have become a regular part of the activities of the Minneapolis schools and have been made especially successful thru the organization of war savings societies in each school. The following outline of the by-laws of the societies is printed for its suggestiveness and for its general utility in schools of any size.

The officers of the school savings societies in Minneapolis are awarded insignia corresponding somewhat to the shoulder straps used in the United States Army, except that the school colors are used and that the insignia are worked out in the form of arm bands. The school authorities have provided the following which may be changed according to the individual notions of the children:

Colonel—a silver embroidered spread eagle on the center of the arm band; lieutenant colonel—a silver embroidered oak leaf at each end of the

arm band,  $\frac{3}{8}$  of an inch from the end of the strap; captain—two silver embroidered bars, parallel to the ends of the straps; first lieutenant—one silver bar and second lieutenant, one gold bar; sergeant—three chevrons.

The board of education has issued forms for recording and reporting the savings and thrift stamps purchased by the regiments. The societies are regularly organized under the direction of the state director of the Minnesota War Savings Committee and the official certificate from the United States Government is framed and hung in each building.

#### By-Laws of the (Harriet Hussars), a War-Savings Society, Affiliated with the National War-Savings Committee.

I. *Name.* The name of this organization shall be the (Harriet Hussars) of Minneapolis, Minnesota.

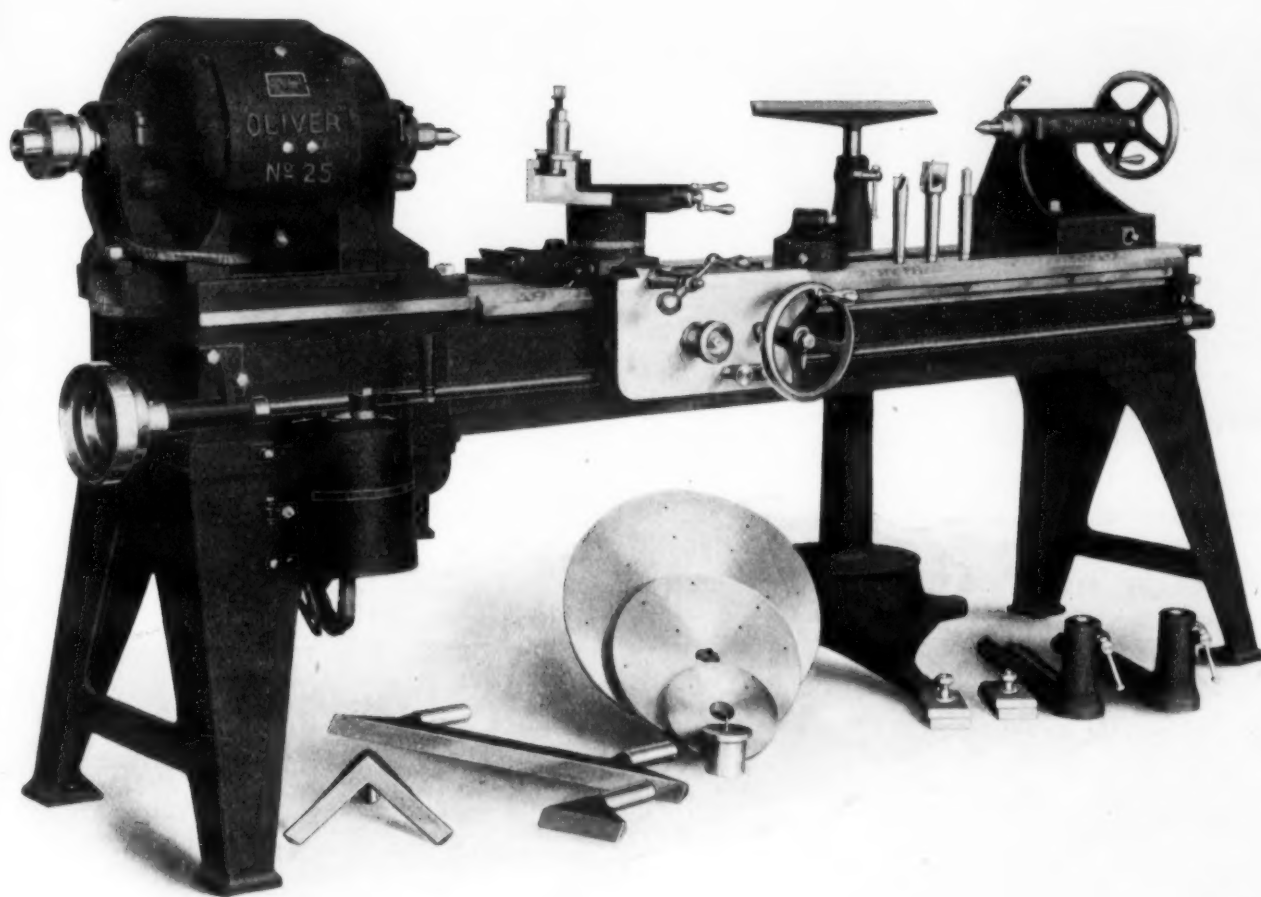
II. *Objects.* The objects of this organization are to promote systematic saving and self-denial on the part of each member, so that labor and materials now employed in the production of those things which are not essential to our daily life may be used in the production of war materials and supplies, which our Government must have to enable it to win this war; to encourage economy and thrift in the community in which the members live; to work for the growth of War-Savings Societies; to invest in United States War-Savings Stamps and Thrift Stamps, and to induce others to do so, thereby helping the Government and the community in which the members live.

III. *Membership.* Enlistment in this organization shall be accomplished when the candidate has signed his name upon the roll of members, and declared his adherence to the purpose of the organization by assuming the obligations set forth in the "Pledge for Thrift Service."

#### Pledge.

I hereby apply for membership in the (Harriet Hussars) and pledge myself (1) to systematic saving; (2) to refrain from unnecessary expenditures and the purchase of non-essentials, in order that labor and material now employed in the production of articles not necessary to my health





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and efficiency may be released for the production of those articles and supplies which the United States needs for the support of its Army and Navy; (3) to lend my earnest efforts to encourage thrift and economy in my community and to secure other members for this organization; and (4) to invest in United States War-Savings Stamps, and Thrift Stamps, and to encourage others so to do.

(Signature).....  
(Address).....

Date, ....., 19...

(Note—Pledge cards embodying the pledge will be furnished by the State Director.)

IV. *Plan of Organization.* For effective service, the membership of this organization shall be divided into companies, each room being designated a company, as follows: Company A, Company B, etc., (Harriet Hussars).

V. *Officers and Their Duties.* The officers of the (Harriet Hussars) shall be a Colonel, Lieutenant-Colonel, and Adjutant.

The Colonel shall command at all meetings of the regiment, shall see that the affairs of the regiment are properly managed, and shall cause the books and accounts of the Adjutant to be properly audited from time to time.

The Lieutenant-Colonel shall assist the Colonel in the performance of his duties, and upon the request of his superior officer or in the absence of his superior officer, shall assume command of the regiment.

The Adjutant shall keep the minutes of the meetings of the regiment by companies. He shall receive weekly reports from all companies in his regiment and forward the regimental report to the director of War-Savings Service of the Board of Education, showing the total amount of War-Savings Stamps and Thrift Stamps purchased by the members of the regiment, and he shall be the means of communication between the regiment and the local and State War-Savings Committees.

The officers of each company shall be Captain, First Lieutenant, Second Lieutenant, First Sergeant, and Sergeant.

The Captain shall command at all meetings of the company, shall see that the affairs of the

company are properly managed, and shall cause the books and accounts of the Sergeant to be properly audited from time to time.

The Lieutenants shall assist the Captain in the performance of his duties, and upon the request of their superior officer or in the absence of their superior officer, shall assume command of the company.

The First Sergeant shall keep the minutes of the meetings of the company and a record of the total purchases of War-Savings Stamps and Thrift Stamps made by the members of the company. He shall make weekly reports to the Captain, showing the total amount of War-Savings Stamps and Thrift Stamps purchased by the members of his company, a copy of which, duly attested by the Captain of his company, shall be delivered to the Adjutant of the regiment.

All regimental and company officers shall serve without compensation for a period of ..... (?), or until their successors are duly elected and qualified.

VI. *Meetings.* Meetings of the companies shall be held each week at such times and places as the company by the vote of its members shall determine. Two-thirds of the members of the company shall constitute a quorum for the transaction of business.

VII. *Order of Business.* Business of companies shall be conducted in the following order: 1. America. 2. Roll Call. 3. Sergeant's Report. 4. Reports of Committees. 5. Unfinished Business. 6. New Business (Program). 7. Star Spangled Banner.

VIII. *Amendments.* These by-laws may be amended at any regular meeting of the regiment by a majority vote of the full membership of the regiment.

### BUILDING AND FINANCE.

The New York board of education has asked the co-operation of the mayor and the board of estimate in amending the pay-as-you-go plan so as to exempt the erection of public schools and additions from its operation. Unless the law is amended few schools can be built in the city and the hands of the board will be tied.

The board has about \$13,000,000 of unused

funds. This money was appropriated for the erection of buildings, for additions to others, and for alterations to make some seventy buildings fit for the Gary plan. It is the purpose of the board to erect the buildings which have been provided for and to transfer to other work the money for alterations and other additions so that sitings may be provided for all children.

Better protection of public school pupils of New York City against fire by having a fireman make weekly inspections of school buildings has been suggested by the building committee of the board. It is planned to require written reports from the examining fireman.

School teachers of Terre Haute, Ind., are to be paid by the check system instead of by voucher. The change is a convenience to the teachers because it permits them to receive their pay at any bank and eliminates delays of long waits at one bank.

The 1918 appropriations for the schools of West Springfield, Mass., have been reduced by \$8,000 thru the elimination of some minor requested items.

The Chicago school board is confronted with a deficit of \$2,254,331 for 1918, or an excess of more than \$1,500,000 over that of 1917. The figures were prepared by experts working under the direction of the "solid six" members of the board.

Supt. Charles C. Hughes of Sacramento, Cal., in a recent report to the board, shows that altho the school enrollment has increased 568, the expenses have decreased \$32,225.25. A decrease in the number of instructors has materially affected the school expenses and the saving will make it possible to pay the instructors on time.

To discourage young men from discontinuing their education before completing the full four-year course in the high school, the school board of Adrian, Mich., has ordered that no diplomas be granted to such students as enlist before graduation. The board holds that the need for volunteers has passed thru the operation of the draft and that it is more patriotic for young men to completely prepare themselves for serving their country by completing their education than by enlisting.



**No. 241 Maple Drawing Desk**  
Size 44"x28"x38" high. Locks on small drawers only  
**PRICE, NET, EACH, \$18.50**



**No. 211 Oak Drawing Desk**  
41" long, 31" wide, 38" high, has six lockers for  
Boards and Instruments  
**PRICE, NET, EACH, \$7.50**



**No. 76-D**  
Made 40 inches long, 19 inches wide, 29 inches high  
Michigan hardwood throughout, top is 1 1/4 inches thick  
Has Wood Vise

**PRICE, NET, EACH, \$3.00**

**No. 78-D**  
Same as above except they are 46 inches long instead of 40 inches  
**PRICE, NET, EACH, \$3.50**



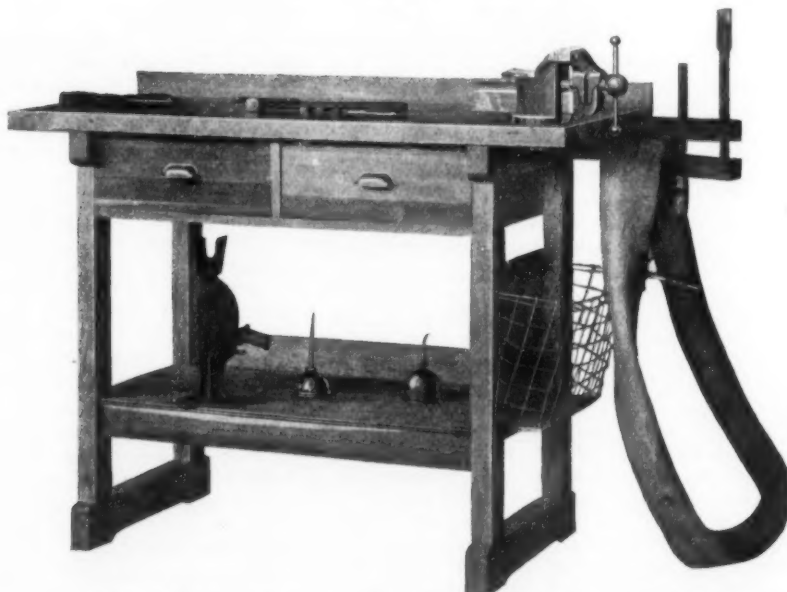
**No. 96 Bench**  
56 x 20 x 32, \$14.00. Maple; Iron Front Vise; Wood Tail Vise  
Locks on 6 Drawers

**PRICE, NET, EACH, \$12.00**



**No. 253 Oak Drawing Board and Instrument Case**  
Has 30 Drawing Board Compartments and  
30 Instrument Compartments

**PRICE, NET, - \$15.00**



**No. 98 Maple Garage or Metal Workers Bench**  
48" long, 24" wide, 36" high  
Has Sheet Metal Covered Top

(NOTE)—Vise and loose tools are not included in regular equipment

**PRICE, NET, EACH, \$8.00**

**PRICE of Vise Extra, \$3.50**

SEE NEXT PAGE →





**No. 809—Maple Cooking Desk**

60" long, 24" wide.  
 Top—1 $\frac{1}{4}$ " thick.  
 Has 4 Drawers, 12 $\frac{3}{4}$ " long, 20" wide, 5 $\frac{1}{2}$ " deep.  
 4 Cutting Boards.  
 2 Cupboards.  
 Price, net, each. . . . . \$18.00  
 Extra for Two Burner Gas Stove, each, \$5.50  
 Only 5 on hand.

**No. 805—Maple Cooking Desk**

60" long, 24" wide.  
 Top—1 $\frac{1}{4}$ " thick.  
 Has 2 Cutting Boards.  
 2 Cupboards.  
 2 Drawers.  
 Price, net, each. . . . . \$15.00  
 Extra for Two Burner Gas Stove, each, \$5.50



**No. 806—Maple Cooking Desk**

60" long, 24" wide.  
 Price, net, each. . . . . \$12.50  
 Extra for Two Burner Gas Stove. . . \$5.50



**No. 45—Maple Bench**

46" long over all.  
 Price, net, each. . . . . \$7.50

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These specially priced pieces of furniture will not be advertised again. The stock on hand is limited in most every instance to but a few pieces. "First come first served" will be our policy.

You should act promptly if interested. Every piece is well built and finished, and worth much more than the prices quoted.

*This is your one chance to get equipment at a nominal cost to you.*

**GRAND RAPIDS SCHOOL  
 EQUIPMENT CO.** GRAND RAPIDS,  
 MICHIGAN

# Transportation—

Automobiles, rural telephones, rural mail routes, improved machinery, better railroad facilities, better public highways, better homes, and better methods of farming have, within the past generation, transformed rural life.

Along with the broadening influence of these things, there has been more or less agitation for better rural schools. Residents of rural communities have brought every pressure to bear that would tend to increase the educational advantages for their children.

This agitation has led to improvements. Better school houses have been erected, planned and arranged in such a way as to make them more sanitary, more comfortable, and more suited to the needs of the present day.

Consolidation—the combining of several districts into one centrally located school—with trained teachers and the thorough departmental and graded work of the best city school has had very rapid development in the last few years.

Consolidation, however, is at its best when there are proper facilities for the quick, safe and comfortable transportation of the school children.

Home-made or make-shift wagons are almost as bad as none at all. They cost within a few dollars as much as a real school bus—built for the purpose—and fail utterly to provide the right kind of a conveyance.

Successful consolidation depends almost entirely upon proper transportation. Even though you provide the best of equipment and the most skilful faculty, you will find that antiquated and slipshod methods of conveying children to and from school will have a detrimental effect upon their progress.

School children who are in a happy, contented frame of mind are awake to the things that are being taught them.

Advanced construction, gained through 66 years' experience in building vehicles of every description, gives the occupants of a Studebaker School Bus not only comfort, safety and convenience but perfect ventilation as well.

If you are considering consolidation you must realize the importance of proper transportation.

Send for Studebaker School Bus Catalog No. 1114. It is full of valuable information for all school boards.

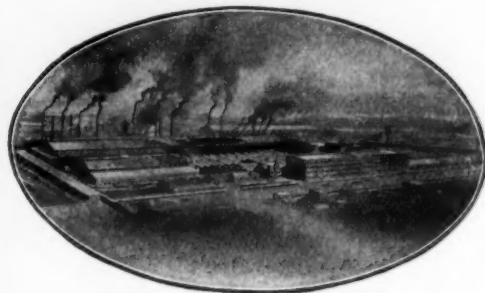
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are strong, solid, well made, and well finished. Every weak point, every Locker disadvantage, has been eliminated.


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equipment that will prove permanent and entirely satisfactory.

Selected steel sheets, from our great rolling mills, are formed by special machinery, into Locker parts, and the completed Lockers are coated with the same tough, baked on enamel, that we use on our best office furniture. No detail is slighted or overlooked.

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**Liquid Velvet** in THE SCHOOL is a first aid to cleanliness—an aid to health. When this flat enamel is used, walls and ceilings may be kept spotlessly clean. They can be washed as often as necessary.

**Liquid Velvet** is soft and restful to the eye. It dries to enamel hardness and has no sheen or lustre. There is no disagreeable odor while applying.

Other O'Brien products particularly adapted for use in schools are Master Varnish, Flexico White Enamel and Pyramid Floor Varnish.

Write for booklet and color charts.

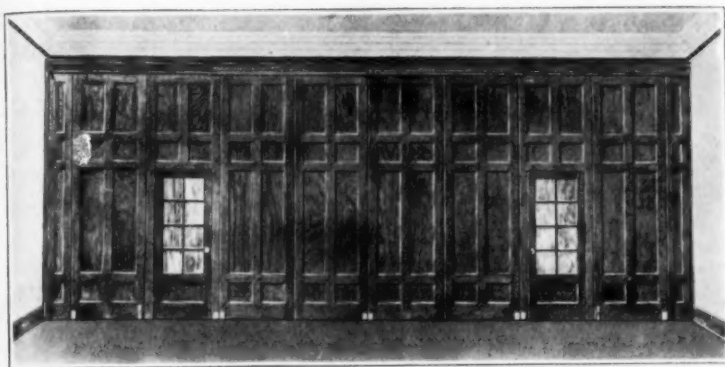
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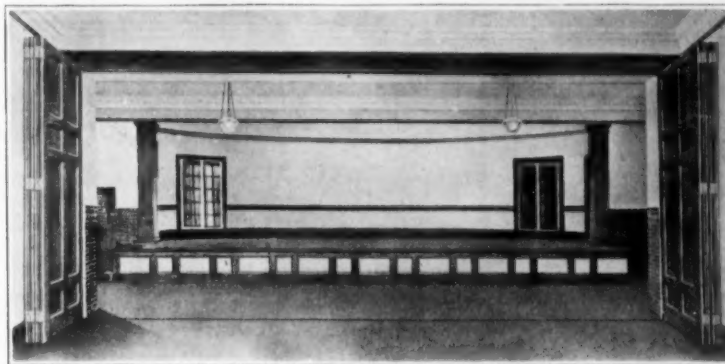
*Liquid Velvet*



# WILSON FOLDING PARTITIONS



PARTITION DRAWN OUT



PARTITION FOLDED

Above cuts illustrate Wilson Folding Partitions installed in the School at Spring Valley, N. J.

Architect, ERNEST E. SIBLEY.

## THE WILSON FOLDING PARTITIONS DO NOT HANG

The doors are hinged together in pairs.

Long or high partitions can be operated as easily as small ones.

It is impossible for a Wilson Partition to get out of order.

All runners and guides are ball bearing.

Slate blackboards and automatic folding chalk troughs for schools.

Automatic Adjustable Jambs allow for swelling or shrinkage of doors.

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## THE J. G. WILSON CORPORATION

*Manufacturers of Rolling Partitions, Hygienic Wardrobes and Diffuselite Blinds*

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NEW YORK, N. Y.

### TEACHERS' SALARIES.

Bakersfield, Cal. Salary increases of ten per cent have been granted to more than seventy teachers. The increases amount to more than \$7,000 annually.

The New York schools are facing a serious shortage of teachers due to the demands of the army and the reduction in the enrollments for normal training schools. The board is desirous of finding some method by which married teachers who have soldier husbands, may be given preference in appointments. Under the law teachers are compelled to take their turn in the eligible list with the result that two years might elapse before they would be called.

Teachers in Utah are to be graded on the basis of their efficiency in teaching methods and in the management and appearance of their classrooms. Notice will be taken of the care exercised in heating, lighting, ventilation and drinking facilities. A high record of attendance and punctuality should be regarded as a matter of pride and emulation and high standards in these matters make for reliability on the part of the pupils.

Denver, Colo. Two teachers of the East Denver High School, Misses Ellen A. Kennan and Gertrude Nafe, have been dismissed for disloyalty.

Because of the shortage of teachers in Woodbury County, Ia., the recent teachers' examinations were conducted without the enforcement of the usual rules and restrictions. Requirements relative to age, amount of training and marriage have been temporarily set aside. Successful candidates are permitted to teach the remainder of the term and in June will take the regular examinations.

A number of Ohio teachers in February had failed to receive any salary for the time they had taught since last September. The condition became serious when school boards which had relied on obtaining needed funds found that the fund was so small that none of the school districts could be paid more than fifty per cent of what was needed. The sum of \$205,000 was

appropriated and about \$150,000 more was found necessary.

A national shortage of teachers is predicted by C. A. Phillips of the faculty of the State Normal at Warrensburg, Mo. At the Normal School there have been five hundred urgent requests for instructors who are not to be had. The demand for clerks in the government offices and in other lines of work paying high salaries have attracted teachers. The education required for teaching makes it easy to pass the examinations and the work and hours are more to their liking.

Springfield, Mass. Teachers in the Junior High School who are not college graduates are permitted to qualify for the maximum salary for college trained teachers. Formerly only college trained teachers were permitted to receive the maximum salary of \$1,200 after four years and the others had to wait six years before reaching the maximum of \$1,000.

Haverhill, Mass. Teachers whose salaries range from \$500 to \$1,050 are to receive temporary increases of \$50 from March 4th to July 1st. In September the minimum salary will be raised from \$500 to \$600 and the maximum from \$850 to \$950.

Sunbury, Pa. The school board has granted increases of \$20 per month to high school teachers.

Worcester, Mass. Teachers are to be given an increase in salaries of \$50 a year from December 1 to September 1, and another increase of \$50 a year from September 1, making the maximum \$950 a year for each teacher.

The Brooklyn Teachers' Union, which is affiliated with the American Federation of Labor, the New York State Federation of Labor and the New York City Central Federated Labor Union has adopted salary schedules for presentation to the board and as a basis for a proposed bill to be prepared for the legislature. The new schedule will give beginners \$1,000 a year as a minimum, with the maximum at \$2,500, reached in ten years.

In the high and training schools for teachers, it is proposed to fix the initial salary at \$1,200 and to limit the maximum at \$2,800, to be reached in ten equal installments.

Substitutes in elementary schools would re-

ceive \$5 a day and those in high schools \$6 a day.

Clerical assistants, library assistants and laboratory assistants in high schools at present receive \$900 to \$1,400. It is proposed to increase the maximum salary to \$1,800 a year in six installments. The clerks in elementary schools (called additional teachers) are also to be included in this. They now receive \$3.50 a day.

"A teacher who has reached the maximum salary under existing schedules shall receive increments of \$200 per year until the maximum salary under this bill is reached," says the committee.

W. J. Stumpf, a school teacher, lost his case against the school board of Hempfield, Westmoreland Co., Pa., when the court decided that a teacher cannot recover for a month's salary for time that the schools were closed in September, 1916, during the prevalence of infantile paralysis. It is said to be the first case growing out of teachers trying to recover wages during the enforcement of the health measures.

Rochester, N. Y. A flat salary increase of \$100 has been granted to all teachers in the public schools.

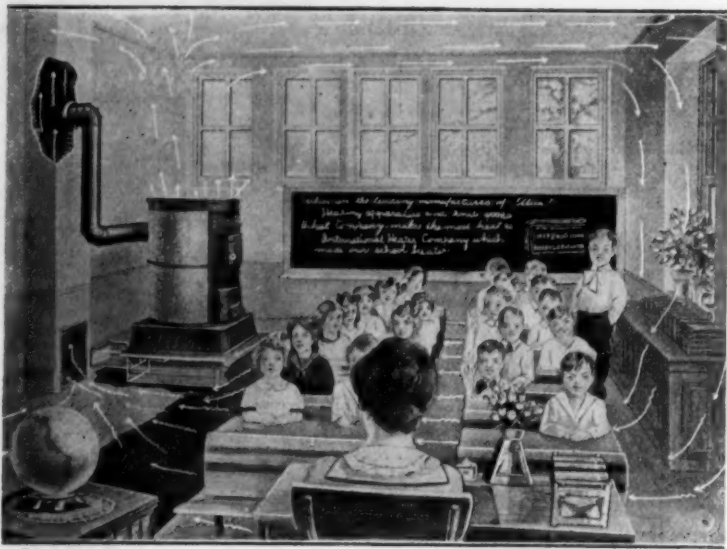
Fresno, Cal. Elementary teachers of the city have been given a bonus of \$25 for the second term.

Schenectady, N. Y. Teachers receiving less than \$1,000 have been given increases of \$100 each, and those receiving more than \$1,000, increases of \$60 each.

Teachers of Dunbar Township, Uniontown, Pa., have been given increases of \$10 per month. To make sure that the teachers will remain until the close of the school year, the money will be paid to the teachers in a lump sum at the close of school.

Cleveland, O. The maximum salary for elementary teachers has been raised from \$1,200 to \$1,300 and for teachers of special merit from \$1,500 to \$1,600. Increases of \$20 to \$120 a year will be given to elementary principals, and high school teachers receiving \$1,900 a year will receive increases of \$150 a year. Those receiving between \$1,900 and \$2,200 will receive increases of \$100. Further increases of \$100 are provided for high school teachers beginning with next September.

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### THE INTERNATIONAL SCHOOL HEATER

Properly designed and carefully built for warming and ventilating One-room School Buildings. Furnishes the proper amount of fresh warmed air to each pupil.

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NEW HIGH SCHOOL, COLUMBIA, S. C.  
Using American System.

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The Coldest Winter in 50 Years has again demonstrated the **RELIABILITY** of the "AMERICAN SYSTEM" under the most severe conditions. Nothing to freeze or explode.

There is an "American" Sales Engineering Service Office in your locality.

School Authorities appreciate American Quality and Service.

WRITE US YOUR REQUIREMENTS

## American Foundry & Furnace Co.

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Enid, Okla. The board has given increases of \$7.50 a month to elementary teachers and \$10 a month to high school teachers. Janitors receive increases of \$7.50 a month.

The finance committee of the Milwaukee school board has petitioned the legislature for a raise in the teachers' salaries—\$10 a month for teachers receiving from \$60 to \$90 per month, and \$5 a month for those receiving \$95 per month. The proposed increases will mean an added expenditure of more than \$136,000 a year.

Attleboro, Mass. The board has raised the maximum salary of grade teachers from \$750 to \$800 and that of primary teachers from \$700 to \$750.

Connellsville, Pa. The board has given flat increases of \$10 per month to all teachers.

Topeka, Kans. Teachers, supervisors and principals have been given ten per cent increases.

Chicago, Ill. Nearly 8,000 employees of the board are slated for an increase in salary, following the example of the city council in granting increases to its employees. It is planned to give the increases to those receiving \$1,500 or less, which constitutes the majority of the teachers and employees.

### SCHOOLROOM HYGIENE AND SANITATION.

Chicago, Ill. A series of experiments on ventilation and temperature are to be conducted in the Haines Practice School by the Chicago ventilation commission. In the tests, both open and closed rooms will be utilized, using mechanical ventilation and recirculated air. The experiments will continue until the close of the school year.

Schoolmen of Ohio are being aroused to the necessity of health work as a result of a survey of health insurance and sickness prevention undertaken by State Supt. F. B. Pearson in co-operation with the state commission. While the greatest progress in health work has been made in the cities, the country schools are also taking a deep interest in the subject. It has been brought out that a study of health insurance is made necessary in part by the fact that public health is affected by negligence in the care of

children, which can be largely corrected by health supervision in schools.

The survey shows that in the cities not more than half have medical school supervision. Out of 54 cities that have reported, less than half have supervision by a physician employed part time or full time. Thirty-one have supervision by a nurse working part time or full time, while 33 have supervision by one or more nurses who visit homes. Only 26 have made any provision for serious cases requiring surgical attention.

Of 57 country schools that have reported only nine have any health supervision. Eleven have the nurse system. In nine the nurses have authority to work in the homes as well as in the schools. In only four is there provision to provide surgical attention where the health of the child demands this.

### NEW LAWS.

A bill has been introduced in the New York legislature as an amendment of the educational law to provide better school facilities in the rural districts. The bill provides that each rural school district shall elect a school trustee, the trustees from all the rural districts of a township to constitute the town board of education. The state must pay twice the amount now paid for the tuition of pupils from rural districts in the union high schools. Another provision is designed to equalize tax burdens of the various districts in a township.

A bill has been introduced in the Rhode Island legislature which defines the minimum powers and duties of superintendents of schools and which makes them responsible for teachers, textbooks and other matters relating to the schools. Under the proposed law the superintendents are charged with the supervision of the schools; they are made the chief administrative agent of the school board; and they recommend teachers and textbooks under the direction of the board.

A bill has been introduced in the Massachusetts legislature which gives to the school board of any city the power to erect, purchase, lease, remodel and repair school buildings, and to maintain and care for them. Under the present arrangement, school buildings are erected under the direction of the city building department.

The New York Bureau of Attendance has introduced a bill in the legislature providing for changes in the compulsory education and child labor laws. These are:

Continuation schooling for employed children between fifteen and eighteen years of age in lieu of compulsory attendance upon evening schools and requirement that children between sixteen and eighteen years of age, if not employed, must attend instruction. To have the Board of Education take over from the Board of Health the duty of issuing employment certificates to children between fourteen and sixteen years. This last proposal is opposed by some organizations interested in the enforcement of the child labor laws in this state.

The constitutionality of the New York State law which gives boards of education in cities the right to make their budget of such an amount as they deem fit, was recently tested in the city of Auburn. Under the old charter the board of estimate and control fixed the amount. This year when the school board asked for \$50,000 as an emergency fund the board of estimate reasserted its control and refused to grant the amount. The court was appealed to to determine whether the state law overrides the special charter provision.

A bill has been introduced in Congress by Mr. Bankhead which requests that the Department of Education undertake the task of devising methods and promoting plans for the elimination of illiteracy in the United States. The bill provides that "the commissioner of education shall, under the direction of the Secretary of the Interior, investigate the methods which have been and are now used in any part of the United States and foreign countries in teaching illiterates to read and write and in inducing and assisting those of meager education to extend their knowledge of subjects pertaining to their individual welfare, and to their duties and responsibilities as citizens and members of society, and that he shall devise efficient and economic methods for teaching adult illiterates and men and women of meager education in the United States, promote plans for the elimination of illiteracy





Children Enjoying the Thrills of the Double Coasterslide at the Indiana State Fair.

The above photograph gives a good idea of our recently patented double coaster slide. The enjoyment experienced by the children is readily realized thru one glance at the accompanying photograph. Excellent for school playground. Provides a series of waves which afford a corresponding number of thrills to the children.

Our catalog tells all about it. Write

**THE AMERICAN PLAYGROUND DEVICE CO.**

**Anderson, Ind.**

and co-operate with state, county, district and municipal education officers and others in putting these plans into operation.

"For the purpose of carrying out the provisions of this act there is authorized to be appropriated, out of any money in treasury not otherwise appropriated, the sum of \$50,000 for the fiscal year ending June 30, 1918, and for each succeeding fiscal year until June 30, 1918, provided that no part of the money herein appropriated shall be used to pay teachers or school officers in any state or territory or in the District of Columbia, for teaching or for conducting or supervising any school or schools. Provided, further, that the commissioner of education shall not undertake to promote the teaching of adult illiterates and men and women of meager education in any state or territory of the United States or in the District of Columbia by co-operation or otherwise without the written invitation or consent of the board of education or the chief school officer of such state, territory, or District of Columbia."

## SCHOOL TRADE NEWS

### OPEN NEW STUDIO BUILDING.

The Kansas City Scenic Company, which is known in all parts of the United States for the artistic stage equipment which it provides for schools and theaters, has recently occupied a new studio building at 24th and Harrison Streets, Kansas City.

The new building is an immense structure, ideal in arrangement and lighting for the manufacture and painting of curtains, drops and other stage scenery. It provides the physical surroundings and the atmosphere so necessary for artistic and efficient work on the part of a corps of experienced artists and designers. School authorities who may be considering the equipment of a high school auditorium stage or the remodeling of one will be interested to receive a souvenir booklet which the firm has just issued. Copies

will be sent to any reader of the JOURNAL on request.

It should be added that the Kansas City Scenic Company has in its organization specialists in stage equipment who are prepared to give technical advice to architects, building superintendents and school authorities. Correspondence concerning this part of the firm's activities may be directed to the home office at Kansas City.



MR. EDWARD O. CLARK  
General Manager, Milton Bradley Co.,  
Springfield, Mass.

### CHANGES IN EXECUTIVE CONTROL OF MILTON BRADLEY COMPANY.

Mr. Edward O. Clark, for many years an employee and business associate of Milton Bradley Company, has been appointed general manager at Springfield, succeeding Wm. W. Tapley.

Mr. Clark entered the employ of the Milton Bradley Company as an office boy in 1888. Later he became salesman for the firm and in 1896 was

sent to Atlanta to take charge of a new branch office which the firm had opened. Mr. Clark remained here until 1902 when he returned to Springfield, being subsequently sent to Boston to open another branch office. For five years he has acted as manager of the school department and has built up important connections in the school field.

Mr. Clark will retain his connection with the school department and will have associated with him as assistant, Mr. John E. DeMyer. Mr. DeMyer will have charge of promotional work, including design of material and the maintenance of close connections with the school systems of the country. He will make his headquarters at Boston.

### MUSIC IN THE SCHOOLS.

"The Victrola in the Schools" is the title of a noteworthy pamphlet just issued by the Educational Department of the Victor Talking Machine Company, Camden, N. J. The booklet makes clear by picture and text just how the "Victor" is used in thousands of schools. Copies will be sent to any schoolman on application.

### NEW VICTOR RECORDS.

The Victor Talking Machine Company has announced a new educational record which contains on one side Brahms' Cradle Song, and on the other side The Little Dust Man, arranged by the same composer. Both songs are sung by Laura Littlefield.

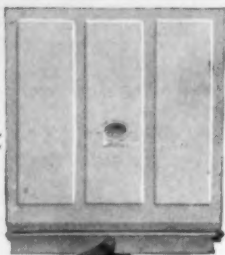
Any Victor dealer will be glad to play the record for teachers and school authorities.

### AMONG BOOKMEN.

Mr. E. Ravensbyrne, a well known veteran book man, died at Rockford, Ill., on March 7, after an illness of five months. Mr. Ravensbyrne, who was born 58 years ago on the island of Ceylon, the son of a retired English army officer, has been in the service of a number of leading educational publishers and enjoyed a wide acquaintance among educators in the middle west. He leaves a widow, Mrs. Ervie Ravensbyrne, on the reportorial staff of the Chicago Examiner and three sons and two daughters by a former marriage.



**This** attractive white enamel cabinet holds 200 Towels—serves just one at a time—occupies but little space.



No knobs to turn—no levers to pull that anyone else may have touched—just take hold of YOUR OWN individual paper towel—use it—discard it—no one else uses it.

It costs LESS to furnish each pupil an absolutely sanitary INDIVIDUAL paper towel than to provide unsanitary cloth towels used by all.

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ONLIWON Towels do away with the common objections of paper towels.

When you use ONLIWON Towels you may RUB your face and hands—use them just as you do cloth towels.

They are very absorbent—chemically pure and under no circumstances will they injure the tenderest skin.

ONLIWON Towels are of a generous size and do NOT dissolve to a handful of pulp when used.

And above all—they are absolutely sanitary. They are served from the attractive dust-proof, germ-proof cabinet—one at a time—uncontaminated—from factory to user.

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Just write us stating approximate number of pupils and average number of days of school attendance and we will send you a very interesting Bulletin—ONLIWON and THE DOLLAR BILL. Address

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These are characteristics of both the Vul-Cot Waste Baskets and the big Vul-Cot Fibre Can used by the janitor.

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are ideal for school use. Their durable construction, which makes a long life of usefulness possible, is supplemented by numerous other good points.

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They hold their shape and do not dent or splinter.

There are no sharp projections to tear clothing, cut the hands or scratch desks or woodwork.

Colors harmonize with any interior finish.

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#### THE SCHOOL BUILDING PROBLEM IN SMALL CITIES.

(Concluded from Page 39)

children who may have to attend school in that locality.

North Dakota has a law which may be unusual so that brief mention of it may be pardoned in this article. In North Dakota, school districts may contract with an individual or a corporation to build for them and rent to them a building especially planned for school purposes. The law allows boards of education to lease for a term not to exceed twenty years buildings especially constructed and equipped for school purposes. These buildings must be built to comply with the laws of the State governing the erection of school buildings. Considering the sort of rooms and buildings sometimes temporarily leased for school purposes one wonders why this law is not frequently employed. It opens up one more possible way to secure needed buildings as it also provides that the leased building may be purchased by the district later.

#### THE HIGH SCHOOL AT BOWMAN, N. D.

(See Page 39)

The new Bowman high school building is planned to accommodate a complete high school and an elementary school of eight grades. It is two stories high and is so built that the basement extends fully six feet above the grade and is as fully lighted as the upper stories.

The basement has three entrances from the first story and three direct entrances from the playground. It accommodates three necessary departments of the school in well arranged groups. The largest of these is the physical education unit which includes a gymnasium measuring 40' by 55'; a storage room for apparatus, a locker and shower room for boys and a locker and shower room for girls.

The second group is the manual arts depart-

ment. This centers in the shop room which is 22' by 34' in dimensions. In connection with this room there are a wood finishing room and a stock room for materials and tools.

The final group includes a janitor's room, a fan room and a boiler room. The last mentioned is outside the main walls and is amply fireproofed.

The first floor, which is bisected by a corridor, ten feet wide, with stairways at each end, has six classrooms, a principal's room and a teacher's room. Four of the classrooms will seat 48 grade pupils each, one will seat 32 and one will accommodate 28 children. The gymnasium balcony which is entered from the first floor has a seating capacity of 100 persons.

The second floor is planned for the high school. Four recitation rooms accommodate 120 students. The auditorium will seat three hundred persons in collapsible chairs and will accommodate 162 students' desks. The science department is grouped with a lecture room 22' by 23' in size between a chemical laboratory of the same size and a physical laboratory, measuring 23' by 25'. Domestic science, emergency, exhibition and art rooms complete the educational facilities on this floor.

The building is heated by means of a direct-indirect steam system, equipped with an air washer and automatic temperature regulation.

The structure was finished in the summer of 1917 and cost \$50,000. Mr. Jesse M. Warren, Butte, Mont., is the architect.

#### THE ADVANTAGES OF CONCRETE FOR SCHOOLHOUSE CONSTRUCTION.

(Continued from Page 30)

to a community center for social and quasi-political gatherings. It is pointed out that this development is logical, that the school should properly have a larger place in community life than frequently belongs to it and that the union of districts—for the sake of economy in the

construction of better buildings and the use of "coaches" and automobiles to bring pupils to and from classes, will result in giving the rural child and the rural community as a whole a better educational opportunity.

Thus we should look to see the little clap-boarded district school, the successor to the little log school, succeeded in turn by relatively permanent and fireproof construction with all the advantages that these better buildings will entail.

Concrete may be used in several different ways to solve the problem of the small school structure. The materials for concrete except the cement, are as easily obtainable in most localities as the logs with which the earliest schools were built. Concrete is coming to be so generally used for farm structures, for frost and moisture-proofness and for general permanence and freedom from the menace of fire, which is not easy to combat in the isolated buildings of the countryside, that there are almost everywhere available contractors competent to take contracts for rural and small town schools. These more modest structures require no such construction plant equipment as is necessary for the economical erection of large buildings of reinforced concrete. They may be built of well-made block or other machine-made units of convenient size, or they may be erected monolithically with double, air-spaced walls, with so-called wall machines. Fireproof floors of concrete or of concrete and hollow tile may be constructed with either type of wall. They may have flat concrete roofs with parapets or wide overhang, or if a pitched roof seems necessary or desirable, it may be covered with concrete roofing tile, which is undoubtedly the most economical fireproof covering for such roofs. If the peaked roof must be of frame construction the building may still be made fire-safe in itself by having an attic floor of concrete.

(Concluded on Page 71)





## These Prominent Architects Have Repeatedly Specified G & G Telescopic Hoists For Their Most Important Schools



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Model E Telescopic Hoist, illustrated below, is electrically operated. It is designed for use where hand power hoist is not satisfactory and enables one man to perform the entire operation rapidly, noiselessly and efficiently.

Model A, illustrated above, is operated by hand. It is built on the one man principle, and is noiseless, safe and economical in its operation. Through its use, the operator can raise and lower cans without leaving the sidewalk—a great saving in time and labor.

Model B, shown below, is similar to Model A with the addition of the overhead crane attachment. The overhead crane enables the operator to raise cans from cellar floor to wagon without rehandling at sidewalk.



These types of G & G Telescopic Hoists are so constructed that they can be operated by one man. When not in use, hoists telescope below sidewalk and no part is exposed above grade level. Each hoist is shipped assembled, ready for installation.

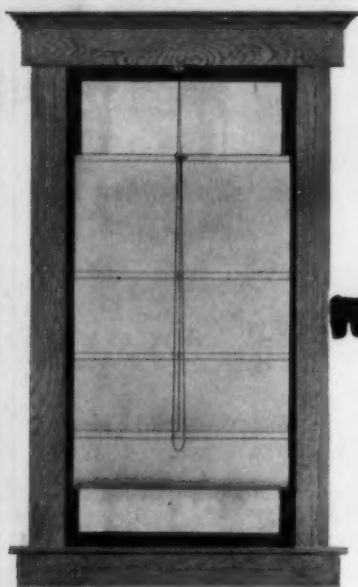
When you build your school, insist on a G & G Telescopic Hoist. There are five models from which to choose. A Bulletin describing them in detail with prices will gladly be sent upon request.



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## PREPARE

for the time when the piercing rays of the sun will come streaming in your windows, which not only is very annoying, but also injurious to the eyes.

The light in the school-room should be regulated so that both the teacher and the pupils will be satisfied.

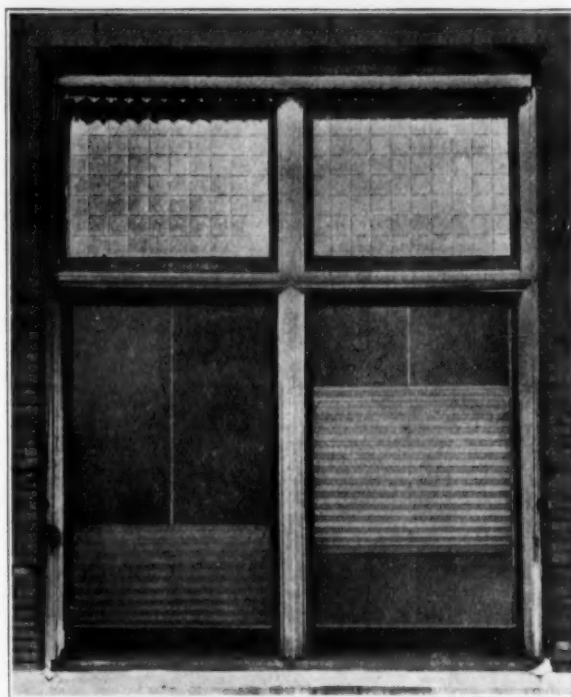
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can be adjusted in such a way as to shut out the rays of the sun and still allow a sufficient amount of light and fresh air.

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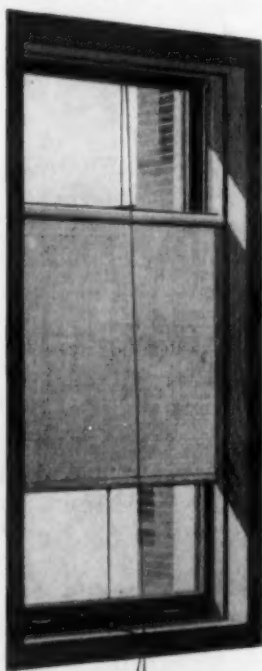
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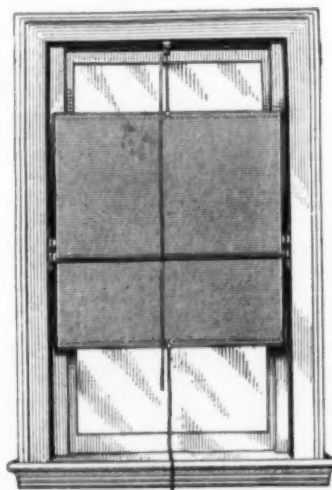
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Write Us. We  
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Should give maximum light  
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SHADES AT  
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PERMIT  
PROPER  
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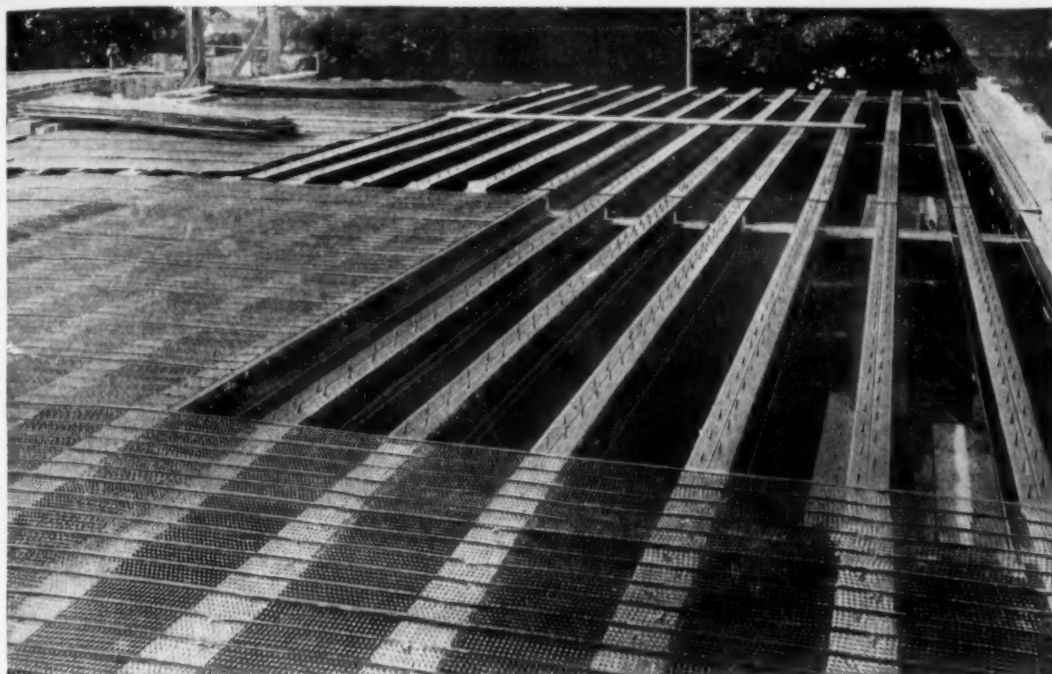
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Kahn Pressed Steel Joists supported by masonry walls. Portion of Hy-Rib for floor is in place. Edinburg Township School, Ohio. Kling & Zenk, Architects.

## HOW ABOUT YOUR SCHOOL?

Will your school building be a place that will actually protect and shelter the boys and girls against fire hazards? Will it be sound-proof, vermin-proof, durable and economical?

Or are you building a school that may some day crumble into a blackened heap of ruin, taking with it hundreds of lives, for whom you are responsible?

## KAHN PRESSED STEEL CONSTRUCTION

is fire-proof. It saves labor in building and economizes in material. Kahn Pressed Steel Joists and Studs reach the school site all cut and fitted, ready to go in place. Hy-Rib for ceilings is attached by means of the prongs in the top flange. Kahn Pressed Steel assures protection against fire, decay and plaster cracking—it assures sound-proof and economical schools.

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### THE ADVANTAGES OF CONCRETE FOR SCHOOLHOUSE CONSTRUCTION.

(Concluded from Page 68)

There is another phase of this subject unusually important at this time. In the midst of war, with overtaxed rail facilities, with coal shortages and many communities facing necessities for economy, the material concrete offers advantages peculiar to this situation in addition to those advantages which are apart from mere expediency.

Concrete is for the most part a local material in practically all communities. The aggregates usually involve short hauls; the cement is made in a hundred mills scattered far and wide over the country, so that hauls average much shorter than those involved in the use of timber, steel or clay products. This situation involves not only the immediate availability of materials, but it involves advantages also in relative costs of materials. Construction with concrete becomes a matter of more nearly local enterprise than would be involved in any other type of construction for most communities.

This is a matter to be considered not merely as a relief in the present situation but in the light of the fact that concrete, being a material fabricated "on the job," leaves a considerably higher percentage of the investment in the local hands than other types of construction. A relatively small percentage of the building investment goes to distant manufacturers.

There is also this philosophical angle to the situation. When we shall have emerged from this war, we shall be able to consider more complacently than we ever have been able to do before, the less spectacular but none the less urgent demands of peace. We shall have learned that the best materials and the greatest sums of money are none too good, none too great, for the purposes of war. We may safely predict that we shall the more willingly dedicate to the causes of peace also the best that is avail-

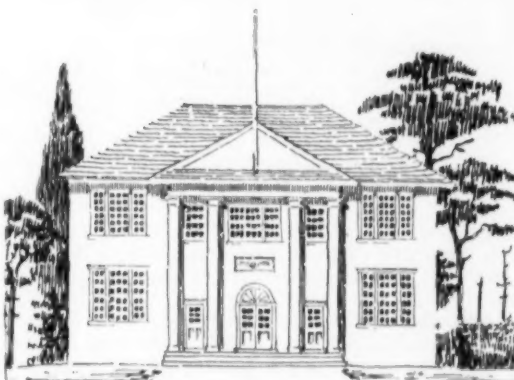
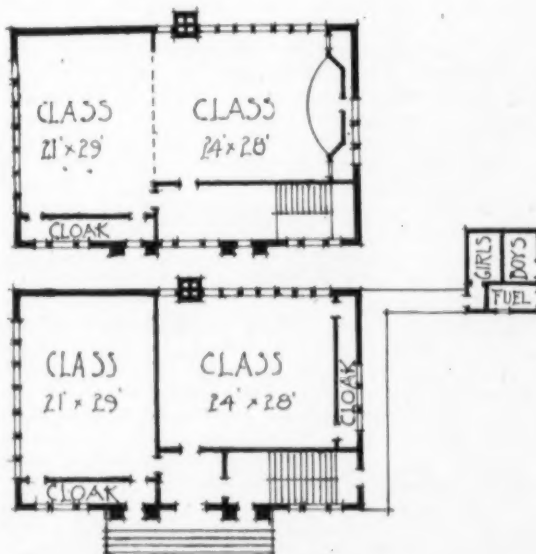


Fig. 9.



Figs. 10 and 11.

able of everything necessary for the fulfillment of peace. We shall more ardently give to the construction of buildings to house our educational institutions the benefits of methods and materials which long since have been none too good for the country's industrial enterprises. The examples set by some of the pioneers in the application of some of these industrial ideas to the construction of schools, may be seen in the accompanying illustrations, in which concrete is already "doing its bit" satisfactorily in preserving these qualities: fireproofness, weatherproofness, sanitation, stability, simplicity, economy, permanence.

### PLANNING THE WAR-TIME SCHOOLHOUSE.

(Concluded from Page 36)

two upper classrooms; and a small stage was built at one end of the improvised assembly-room. The question of fire-escape was solved by enclosing the stairway with metal lath and cement plaster, and laying a concrete floor at the bottom; more important still, the stair has its own exit, opening directly outside. The door connecting the first story hall with the stair-hall, is kept closed by heavy springs; thus in case of a first-floor fire, the smoke and flames cannot reach the stairway—for some time, at any rate. The small door at the extreme right, under the stairs, opens to a walk sheltered by a high board fence, and leading to the girls' earth-closet. The decency of this is very evident; the comfort is still more evident, when bitter winds are blowing in from the frozen bay!

(Next article: The Six-Room School.)

The State of New Jersey during the year 1917 pensioned 53 teachers, of whom eleven were men and 42 were women. The total amount of the pensions paid during this time reached \$27,939.92, while the annual pension amounts to \$33,241.46. The total number of pensioners to date is 387 and the total amount of pensions paid is \$211,044.60.

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## Book Reviews

### English Essays.

Edited with introduction and notes by David T. Pottinger. Cloth, 331 pages. Price, 25 cents. The Macmillan Company, New York.

The sub-title, "An Anthology of Essays from Bacon to Lucas," tells readers that here is choice essays, typical of different periods.

The history of the essay is well traced in the introduction. Examples are given from a group of essayists whose efforts appeared in the Spectator and the Tatler. Essays have also been chosen from a later group whose fortunes were bound up in reviews and magazines. From the New England coterie of the nineteenth century, Emerson is the sole representative.

As the term essay has been applied to widely different compositions, what is said of the characteristics of the essay is informing. The conclusion reached is that essay is a written monolog, revealing the personality of the author.

### Pride and Prejudice.

By Jane Austen. Cloth, 408 pages. Price, 64 cents. Ginn and Company, Boston.

This quiet story of English middle class life is a bit of fine art. In the routine of daily life, in the occasional dances and dinners, its characters are always real men and women. Each one, too, is always distinct from the other characters. A famous English novelist is reported to have said: "I can do the big bow-wow style, but when it comes to the fine cameo-like characterization of Jane Austen, I am nowhere."

The editor has succeeded in drawing a picture of Jane Austen as "a living personage who was in active touch with the world in which she lived." She disliked extravagance, she detested sentimentality, she believed in realism, and her work

has placed her name among the first in English fiction.

### Jackanapes and Other Stories.

By Juliana Horatia Ewing, with illustrations by Sears Gallagher. Cloth, 271 pages. Price, 56 cents. Ginn and Company, Boston.

The opinion of Sara Cone Bryant on short stories is almost above criticism. In this book she has edited five short stories, written by an English woman, the daughter of an English clergyman and wife of an English officer. All her not long life this woman was a story-teller for children and these stories should live many many years.

Suffering and death—the result of war—enter into "Jackanapes" and "The Story of a Short Life." All are marked by truthfulness, pathos, charm.

### Gate to English.

Book II. By Will D. Howe, Zella O'Hair and Myron T. Pritchard. Cloth, 375 pages. Price, 65 cents. Longmans, Green and Company, New York and Chicago.

Two teachers in the middle west with a teacher in Boston have united their efforts in the preparation of "Gate to English," Book II.

It is noteworthy that work begins with the grammatical unit—the sentence—then takes up the parts of speech in their relation to the sentence. This is well, as the sentence sense cannot be too carefully cultivated. It should also be noted that the main emphasis is laid upon the function and use of words. Thru their variety, the numerous exercises afford pointed drill. Some diagramming is used which up to a certain point is a time-saving device.

The requirements in compositions are practical, not abstract. Capital suggestions are given relating to the use of the dictionary and making one's self familiar with new words. Professor Palmer has said that using a new word three times makes it a part of one's vocabulary. Why was the chapter on the paragraph placed before the one on the sentence? The good qualities of a sentence belong equally to those of a paragraph, while the paragraph has its own special difficulties.

### Tennyson's Idylls of the King.

Edited by W. D. Lewis. Cloth, 215 pages, 12mo. Price, 30 cents. Charles E. Merrill Company, New York.

That the Idylls have a bearing upon real life is the point of view taken by this author. Fine hints are given for use in the classroom. An account of the slow and irregular growth of these idylls and of the Arthenian legend on which they are based leads to the conclusion that "Tennyson adapted the legends to his own day, so that we have a sixth century historical setting, a mediaeval chivalry and nineteenth century social ideals."

### Garden Steps.

By Ernest Cobb. Cloth, 225 pages, illustrated. Price, 60 cents. Silver, Burdett & Co., Boston, New York, Chicago.

"Food will win the war." This truth and its possible negative are powerful reasons why every school child should undertake home and school gardening and why it should be familiar with the principles and methods of planting, and growing at least the staple vegetables for home consumption.

The present book will interest even the most indifferent person in gardening. We have read few school books which are as infectiously enthusiastic as this little guide. The author invests the most burdensome tasks of gardening with a human element that will make the amateur who has tried and failed go back with renewed vigor and will enthrall the children who have never tried to become the proud possessors of a "patch" of their own. The book is none the less complete, entirely scientific and practical. It is the outgrowth of fifteen years of experience as a gardener and guide of gardeners. It tells just what the amateur—be he adult, or boy or girl—wants to know.

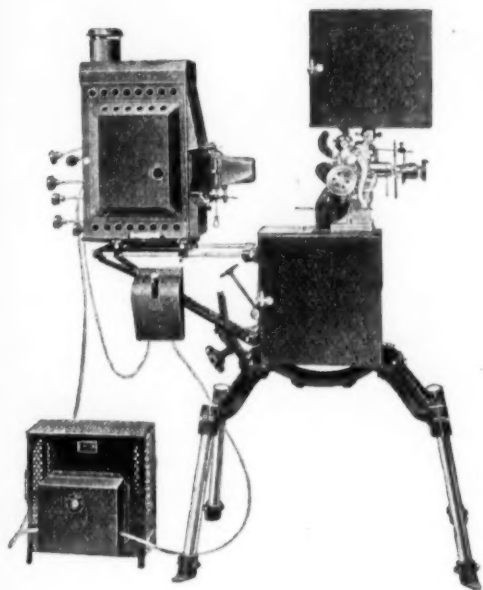
The arrangement is logical and pedagogical and provides a complete, systematic course for upper elementary grades.

The adult amateur will find it a handy reference book—the reviewer expects to use it as such during the spring and summer.

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### Food Problems.

By A. N. Farmer and Janet Rankin Huntington. Cloth, 90 pages. Price, 20 to 27 cents, net; carriage extra. Ginn and Company, Boston.

The publication of this unique and timely book represents a truly patriotic service on the part of the publisher and the authors for the work is being issued at absolute cost, and its sale brings no remuneration or royalty whatever to its authors.

Every teacher and school board will welcome this book, we think, in that it affords a means of teaching all the great fundamental truths of food conservation and thrift by tying them into a fundamental school subject, arithmetic.

One of the authors, Mr. Farmer, was for six weeks connected with the National Food Administration in Washington. As a result of first hand knowledge of the ideals and purposes of Mr. Hoover he developed with the aid of a large group of teachers a series of problems and outlines for teaching food conservation. The problems it need hardly be added aroused such an enthusiastic response on the part of the children that the present book was prepared.

The book has been prepared with rare pedagogic skill, and its pages reveal a freshness and directness of style and language that can only come from the inspiration of a great cause and a great occasion. It is recommended most heartily.

### A School Grammar of Modern French.

By G. H. Clarke and C. J. Murray. Cloth, 369 pages. Price, \$1.50, net. E. P. Dutton and Company, New York.

This is a re-issue of a grammar that has been immensely popular in Great Britain. It is thoroughly complete and modern and will fit well into any complete high school or college course. It implies an elementary knowledge of the language.

### Brief Course in Isaac Pitman Shorthand.

By Isaac Pitman. Cloth, 174 pages. Price, \$1.35. Isaac Pitman and Sons, New York.

This book is a new edition of the work first issued in 1914. As its predecessor it is intended

for use in night schools and business schools where the time to be devoted to acquiring the working fundamentals of shorthand is exceedingly short. The chief value of the book as we see it is the brevity of the exercises and the emphasis laid on principles which mature students will readily grasp and retain.

### Spanish Business Conversations and Interviews.

Cloth, 114 pages. Price, 85 cents. Isaac Pitman and Sons, New York.

There has been a decided need for a book of this type. It is made up of a series of business conversations between buyers and sellers, and its only shortcoming so far as American schools go, lies in the absence of a wide variety of typical conversations on goods sold by American manufacturers and bought by American dealers. The collection of letters which concludes the volume is especially strong in conveying the spirit of Spanish correspondence as well as the form and special vocabulary.

### A French Primer.

By W. E. M. Llewellyn; edited by Walter Ripman. Cloth, 60 pages; illustrated. Price, 35 cents, net. E. P. Dutton and Company, New York.

A purely phonetic in which the special phonetic signs of the British Simplified Spelling Society are used.

### New First German Book.

By Walter Ripman, S. Alge and S. Hamburger. Cloth, 183 pages; illustrated. Price, 80 cents, net. E. P. Dutton and Company, New York.

This book is a re-issue of a work which has been used thruout the English speaking world. Its appearance from the press of a famous British publisher and with the imprint of an American house is interesting as an indirect rebuke to those who believe that the study of the German language is unpatriotic. The book makes use of the direct method and provides a vast amount of well graded material for conversation and for written exercises.

Silver, Burdett & Company have announced the accession of Mr. N. C. Grimes, who has taken charge of their work in Northern California and

Nevada. Mr. Grimes is a graduate of the University of Wisconsin and has held a number of teaching and supervisory positions in high schools and universities.

### PUBLICATIONS.

*Standardization of Report Cards.* E. Morris Cox, assistant superintendent of schools, Oakland, Cal. The Oakland schools have subscribed to the principle of measurement as being one of the outstanding characteristics of an efficient system. A study of the system of promotion and marking of standing in the schools was undertaken by Mr. Cox and a special committee following an inquiry in September last, which resulted in the summaries contained in the pamphlet. The pamphlet takes up report card records, percentages of records, summary of percentages, notations and remedies for retardation or exceptional progress.

*The Public School Situation of Louisiana.* Vol. III, of the biennial reports of the State Department of Education, Baton Rouge, La. An interesting pamphlet which contains a brief summary of the essential facts connected with the progress of the schools in 1916-17, thirty-one maps and other valuable information.

*Selections for Speaking in the Public Schools.* War Information Series No. 10, Lee, Lincoln and Washington Series. University of North Carolina Extension Leaflets, Chapel Hill. The selections are intended to supply material suitable for delivery on special occasions in the public schools. The pieces include old and new material, are of various degrees of difficulty and literary excellence but all are effective and carry a vital message of pride in the past and of courage and inspiration for the future.

### WAR AND THE SCHOOLS.

The schools of Reading, Pa., have been organized into a number of units for the promotion of war activities. The work has been extensive and varied and has had for its aim the bringing together of the schools and the community, and the enrichment of the course of study.

In the Liberty Bond sales the pupils sold \$452,000 worth and a number of pupils bought bonds with their savings. They have also bought thrift stamps and baby bonds.

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During the Red Cross drive the pupils secured enrollments of 15,000 members. Auxiliaries have been formed with each school listed as a one hundred per cent unit. Funds for the Red Cross were collected at the street corners and contributions were made by pupils thru the sales of papers, magazines and rubbers. Money was also collected for the Y. M. C. A., Y. W. C. A., Jewish and Belgium Relief Work, Boy Scouts and Knights of Columbus. The pupils were active in the sale of Christmas seals, smileage books and friendship check books.

The students of the Girls' High School, working in organized units, did such excellent work for the Belgium Relief, that a personal letter of thanks was sent by the Director of the Commission.

The activities in war products included knitted articles, hospital clothing, baby layettes, comfort

kits, surgical dressings, trench candles, and remade garments. Newspapers and magazines were sent to the camps and cantonments, and Christmas boxes were sent to seven camps.

Industrial classes have been formed in those vocational subjects which are in demand for army work. All of the various activities have been accomplished under the direction of Supt. Chas. S. Foos.

A reclassification of men teachers of the draft age in public technical schools is proposed in order that these men may aid in the re-education of American soldiers returned from France. The provost marshal general at Washington has been asked to make a deferred classification in order that these instructors may not be drawn into the army.

The Chicago University, the New Trier Township and the Evanston Township high school

buildings have been offered for the establishment of army training schools this summer.

Men of draft age who are likely to be drafted are to be given vocational training in New York evening classes, formed under the direction of the Mayor's Committee on National Defense and the president of the school board. A group of courses has been arranged to fit men for special service.

Indianapolis, Ind., is to be made a vocational center for the training of 2,000 conscripted men of the national army. The schools will provide part of the equipment and the instructors and the government will bear the expense.

A radio school of mechanics has been established at Carnegie Institute of Technology, Pittsburgh. The courses are in charge of H. A. Calderm, head of the electrical department.



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### THE JUNIOR HIGH SCHOOL AT FUTURIA. (Concluded from Page 35)

middle of the room on which may be set the small bench machines.

#### Where an Office is Indispensable.

On one side of the room should be placed a rack for holding the sheet metal. This should be at least nine feet long and near it should be placed the squaring shears so that the heavy stock will not have to be carried.

"I note," said the principal, "that you have included an office in your sketch. Are you not getting rather exclusive? None of the other instructors are asking for a private office."

"That has been included," said the instructor, "not only for the benefit of the instructor but for your benefit also. If you have ever tried to carry on a conversation when the boys were putting a rim on an ash can you will realize that talking may be a mighty difficult matter. There are many times when an instructor wishes to talk with a visitor, with the principal, or with a pupil and it is absolutely necessary that he must have a place in which he can shut out the noise of the shop."

"You are right," said the principal, "you shall have your office and the other equipment will be installed in accordance with your sketches."

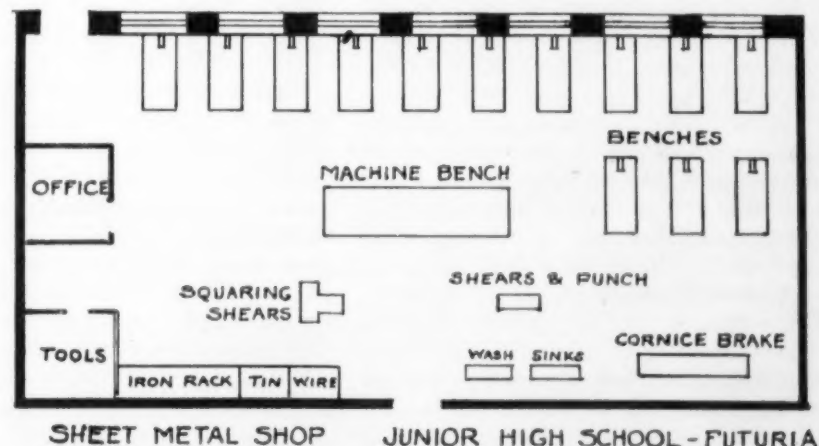
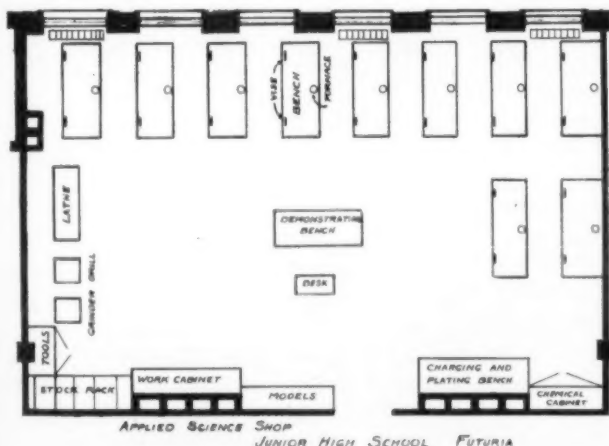
#### Revealing the Wonders of Applied Science.

The last sketch to be submitted was that of the teacher of applied science. "The equipment of an applied science shop," said he, "is not as elaborate as one might suppose. We shall need a bench for each two pupils and on each bench should be placed two vises. In this shop the boys will do a great variety of work. They will make water motors, small electric motors and generators, storage batteries, small steam engines, and possibly the advanced boys may be able to make small gasoline engines. A furnace should be placed on each bench for the soldering. At one side of the room should be placed a large bench on which will be done the charging of the storage batteries and any nickel plating that is required. The only machine tools needed will be a lathe, a grinder and a drill, since the larger parts of the articles turned out will be made in the machine shop by the machine shop boys."

During the succeeding days the instructors of all other subjects turned in their sketches. After examination by the principal they were turned over to the architect to be included in his detailed plans.

It was now June and the principal had called together the teachers and supervisors for the last conference before vacation. In closing this conference, he said, "You have all done a fine piece of work in connection with the plans of the building. I hope that during the summer you may all enjoy a much needed and deserved rest. You may forget the junior high school for the next three months and when we come back in the Fall, we shall take up the problems of the course of study. I only wish that the principal of every junior high school thruout the country might have as competent and loyal a group of helpers as have I. The meeting is adjourned. Now for a good vacation."

Supt. Frank B. Cooper of Seattle, Wash., has been unanimously re-elected for a term of three years.





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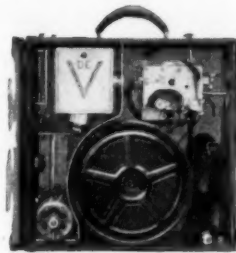
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As a matter of fact, a number of schools where the DeVry is now being used have worked out a regular daily schedule, and the machine travels from one class room to another for the particular study for which it is being used.

Where social centers are held, the machine has proven very valuable. It can be used in the auditorium for amusement purposes. This machine is so practical and yet it is light enough for even a small school child to carry from one place to another without much exertion.

For further information address the

## CHEAPENING THE COST OF VENTILATING SCHOOLS.

(Concluded from Page 27)

ment over the arrangement shown. Such conditions, however, are unusual, and the arrangement shown in Fig. 3 would probably best suit nine cases out of ten. If air filters, air washers, or other equipment are to be used, such apparatus can be set on the inlet side of the fan so as to draw the air thru this on its way from the fresh air intake (or re-circulating opening) to the fan suction.

In laying tile pipe for this purpose there are several methods which may be used. Probably the best results are obtained when the lower tier of pipes is laid on solid earth with small depressions scooped out to accommodate the bells on the pipes. Each joint should be carefully calked about half full with oakum, driving the oakum into the joint with a calking tool operated by hand and without the use of a hammer. The balance of the joint should then be cemented up with mortar in a manner similar to that used for common sewer pipe. Particular care should be taken to see that the interior of the joint is perfectly smooth.

To support the upper tier of pipes it is necessary to have a solid and substantial base, especially as the concrete corridor floor must be laid on top of the upper tier. A simple solution consists of pouring a thin mixture of concrete between the pipes of the lower tier, filling up all the space between the corridor walls to about the level of the tops of the bells on the lower tier. This results in casting the lower tier into a solid mass upon which the upper tier pipes find a solid and secure bed. When the pipes are placed as closely together as possible the amount of concrete so used is not excessive and, if a

similar procedure is applied to the upper tier, an everlasting construction results in which the pipes are (to all intents and purposes) air tight. The shape (circular) is the most ideal for the flow of air, the radii of the bends are ample and no corrosion or deterioration is possible after installation.

The central plenum chamber consists of a room excavated in the middle of the corridor, the roof of the room forming the corridor floor slab. Access to this room must be provided to permit adjustment of the air motors operating the automatic dampers. The two horizontal intermediate partitions may be of sheet metal, concrete, metal lath and plaster, or any other air tight construction properly insulated so as to prevent the transference of heat from the hot to the cold air compartments.

To connect this chamber to the heater on the higher level galvanized iron, black iron, metal lath and plaster connections may be used altho the concrete walls illustrated will make the most substantial job.

### TO BOND OR NOT TO BOND?

(Continued from Page 22)

quirements for years without resorting to either bonds or high taxes. A moderate tax each year is found to be sufficient.

To use Oakland again for illustration, the writer has figured that if the city had adopted some such a building program in 1906 when it first began its phenomenal growth, all necessary building requirements could have been met by direct taxes no heavier than have been necessary to care for the bond issues that have since been voted, and the city would now be free from school debts and ready to cope with the present situation in a similar manner.

As it is, the city can look forward to paying off school bonds for the next thirty years or more, and approximately twenty cents of the present tax rate, instead of taking care of present needs, must be spent for the work of the past.

If the city now adopts the building program recommended, there will be a very high tax rate due to the old bonds. And on the other hand, if the city votes another bond issue to meet the present crisis (and there is talk of doing so) an even worse crisis will be met by the time the bonds can be sold and the buildings constructed. The city will either have to stop growing or else adopt a building policy suitable for a growing community.

### The Proceeds of Direct Taxes Are Better.

In this connection, there is one act of the last California Legislature that is worthy of commendation. By the new law, school boards, instead of floating bond issue or otherwise going to considerable expense to secure funds for improvement, may submit a request for a special tax of not over fifteen cents on the \$100 in excess of any moneys available for current expenses. If this request is approved by the county superintendent of schools, the county supervisors may levy the tax without the expense of an election in the district.

The Tax Payers' Association of California recently suggested another law that should help materially in solving this knotty problem. They would permit districts to vote, by the same majority that is required to carry bonds, a still higher building tax extending over a short period of years. This plan would have practically all of the advantages of a very short-term bond issue without the accompanying expense. Of course the period of years would need to be

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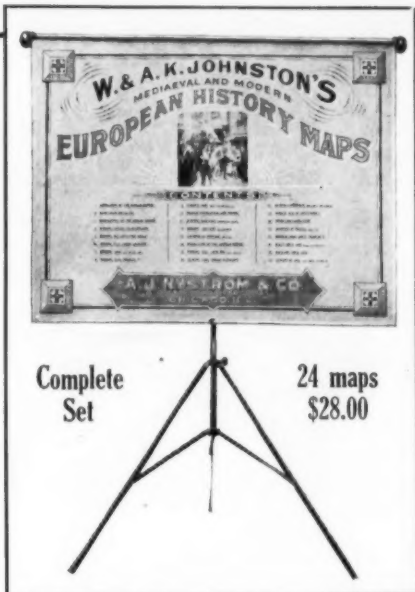
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strictly limited, and the purpose of the entire levy would have to be clearly stated at the election.

Summary and Recommendations.

1. Bonds should never be issued if any other plan can be devised.
2. Only serial bonds should be tolerated, and they should provide for paying at least half of the debt during the first half of the term.
3. The period for which the bonds are to run should never exceed the substantial usefulness of the improvement. Ordinarily ten years should be sufficient. A longer term than twenty years should be unlawful.
4. With the exception of deciding upon the amount of the issue and the maximum rate of interest, all matters pertaining to bonds should be left to a properly qualified state official. Provision should also be made in the law for state guarantee of bonds as to both legality and payment.
5. The best thing to do when one is confronted with the question of how to raise money for improvements is to work out a forward-looking policy of direct taxation that will provide for future needs as they occur. In small districts where this is impossible, vote for short-term serial bonds and work for a larger unit of school administration.

ONE STORY SCHOOL BUILDINGS.

(Continued from Page 20)

quency of change to insure proper air for breathing. The air need never be heated over 75 degrees in the fan chamber, and it may drop to 65 or 60 degrees before it is delivered into the room, and is re-heated by the local radiators. It can, and should be humidified at the fan chamber, but need never be heated enough to

lose the original vitality of outdoor air. This system enables one room to be controlled in a manner differing from its neighbors. One teacher may have all of her windows open and not deprive the adjacent room of the amount of heat desired therein.

In short, the one-story type does not present any problems differing in principle from other types. It only requires the distribution of heating units and the local placing of radiators combined with the relief of the ventilation system of any necessity for supplying warmth.

The six plans used to illustrate the one story type were developed in the order in which they are numbered. The first five are similar in general scheme, but vary in detail and in use. The sixth plan differs in scheme because it also differs in size or number of classrooms. The five are average size—the sixth is a large school and is introduced to raise discussion on the question of limiting the one story idea to small buildings.

The main corridors, the large units between the corridors, and the classrooms along the outer sides are common to the first five plans.

Variety comes in the stages of the assembly halls. In the first (Holly) the stage is merely a stage for dramatic use, and is of very little service ordinarily. In Lincolnwood and Skokie the stage is a kindergarten in school hours and a better theatrical stage in the evening than Holly is. These three lack the gymnasium, which begins as a front social exercise room in Osseo, and takes its place as a full size gymnasium and assembly hall stage at Danville.

When the Skokie school is completed, it will have a shop and cooking room between the assembly hall and the office suite, which at

Lincolnwood will have to be provided for in another manner.

Ventilated wardrobes are built into each elementary classroom, and corridor lockers are provided for the high school pupils, causing another difference in detail in these plans.

Thruout all of the plans effort has been made to provide more than one possible use for each portion, as note the passages to the libraries in Osseo and Danville which serve also as book stacks.

The teacher's room in each case, with its kitchenette, is used as a kitchen or serving room for neighborhood gatherings. Duplicate or varied use calls for ample storage room for furnishings not in use. The development of this feature is shown by viewing the plans in the order given.

Basements are conspicuous by their absence. In Holly there is none whatever, the boiler room being level with the schoolrooms. At Lincolnwood and Skokie the only basements are under the kindergarten concrete terraces, and are used only for boiler, fan and fuel purposes—no children ever go there.

The Osseo plan as here shown is similar to Holly in this particular, but at Danville a basement has been constructed covering about a third of the building area in which the usual heating facilities are located, and locker and shower rooms for boys and girls as well. These connect directly with the playground on the lower level, and by stairs with the gymnasium above.

The question of the limit of desirable use of the one story type has been raised. So far as the writer knows no great objection has been made to its application to eight, ten or twelve

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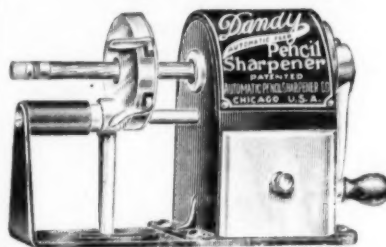


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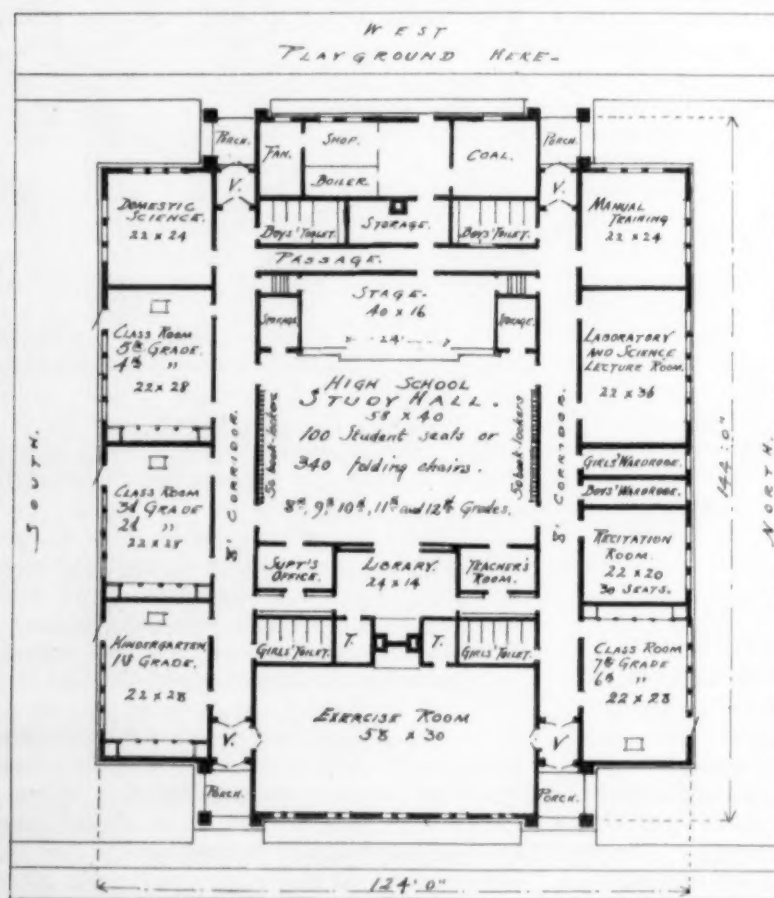
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room buildings; at least, no objection by the educator.

In Rochester, N. Y., and in several cities in California, large one-story schools have been built—sixteen or twenty or more rooms, with assembly hall, gymnasium, manual training,

cooking, kindergarten, library and other accessories.

One principal remarked, in reference to a certain large one-story school, that to walk around it twice was equal to a day's work. Wherein he stated what was a fact to him, because it was



Perspective and Floor Plan,  
Public School Building,  
Osseo, Wis.

Perkins, Fellows & Hamilton,  
Architects, Chicago.

(See Pages 17-20).

all apparent or obvious from one point of starting. In reality, the corridor mileage is exactly the same, whether the rooms be disposed in one, two or three stories, and in the latter cases the stairs are all extra. In the writer's opinion the task of making the circuit of classrooms is appreciably easier in the one-story type than in the two-story building.

The governing feature, it would appear, is the availability of the land, the size of the town blocks, and the value of real estate. If the site is there and the cost is not excessive, it would seem that no arbitrary limit of size should be imposed on the use of the one story idea—that such advantages as it possesses should be given to all school children.

Supt. E. B. Tucker of Helena, Ark., has been re-elected by unanimous vote of the board of education for a second term.

Mr. Clarence E. Blume, Oakes, N. D., has been elected Supt. of Schools at Williston, N. D., with a fixed salary of \$2,400.

Mr. H. R. Dalrymple, for eight years connected with the American Book Company, has entered the employ of John C. Winston Company. Mr. Dalrymple will have charge of a new school book department which the firm has opened for the central western district including Ohio. He will make his headquarters at Chicago.





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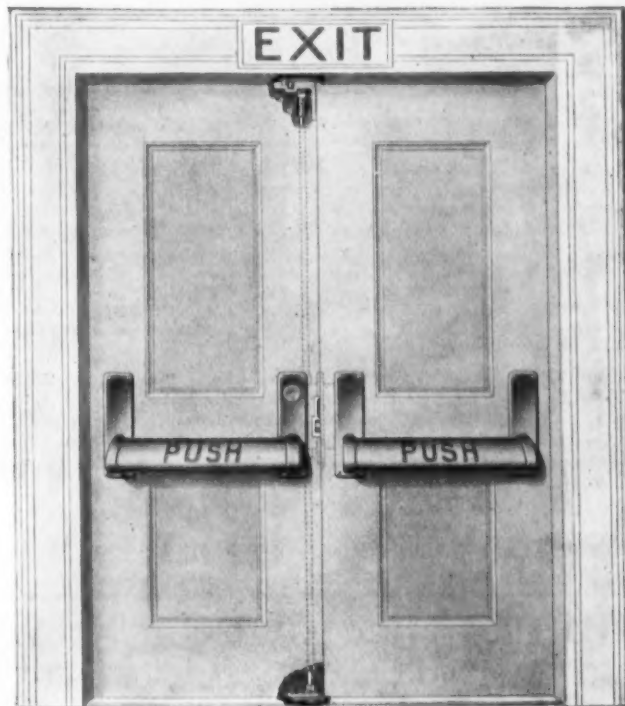
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meet the strictest requirements  
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These bolts are attractive in appearance, strong in construction and quick in action. They also have a number of distinctive features which especially commend them for use on schools and public buildings where quick exit and safety are required.

These bolts have a wide push bar, and slight pressure on the bar at any point will release the bolts instantly.

**They are so constructed that in operating the push bar the hands or arms cannot be caught between the bar and the door.**

The push bar projects only 2½ inches from the surface of the door, permitting the door to swing wide open so as not to obstruct passage through the doorway. All edges and corners on the bars and brackets are carefully rounded, eliminating all possibility of wearing apparel becoming accidentally caught.

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County, Montgomery, Alabama, of which schools this is one. I have the sample shade you mailed to Miss Belser and am subjecting it to a severe endurance test by placing it in position and letting two hundred children play with it all they like, which is no little bit. So far it is in better condition than we thought possible.

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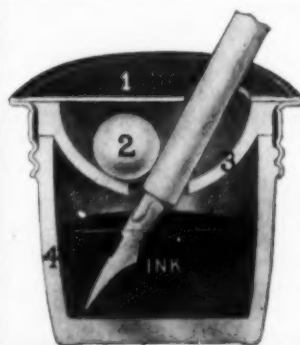
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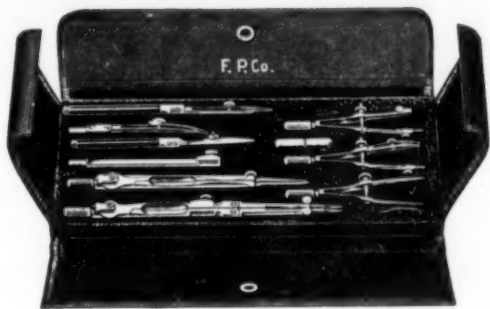
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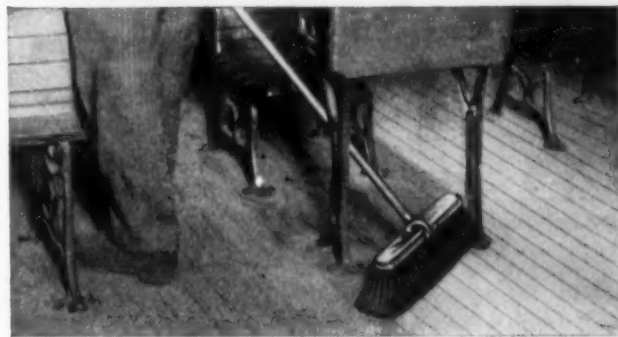
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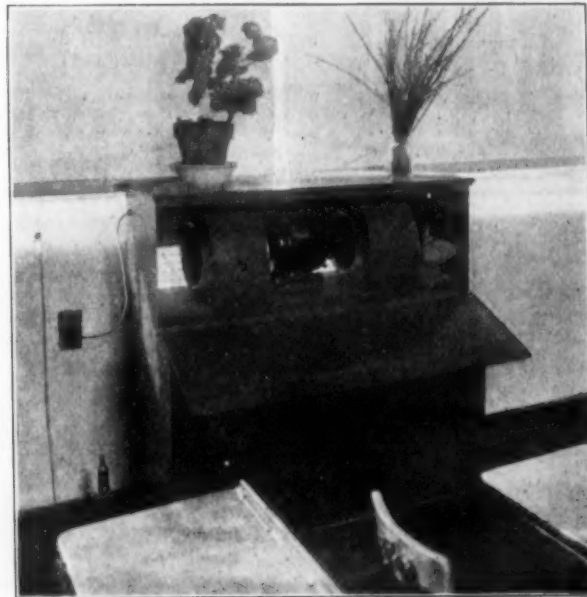
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**Catalog**—INKS, PASTE, MUCILAGE, ETC.—Send for our catalogs today. Samples gladly sent upon request. When writing advise, if possible, your requirements and we will quote. Address the Robert Keller Ink Co., 105 N. Clark St., Chicago, Ill.

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**School Furniture**—Our latest catalog on School Furniture will be sent to you upon request. See advertisement pages 62 and 63 in this issue. Grand Rapids School Equipment Co., Grand Rapids, Mich.

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We, of course, manufacture all kinds—Liquid Soap, Soap Powder, Scouring Powder, Sanitary Soap, etc., but we want to call your special attention to AMCO Cleanol Soap, a product when—used in small quantities produces a very satisfying and cleaning lather—for cleaning everything in your school from the door step to the attic stairs, yet so pure it does not affect the finish of varnished or painted surfaces and is decidedly economical to use.

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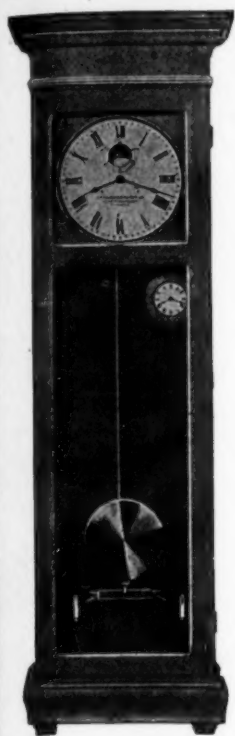
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60-Beat, Self-Winding Master Regulator. Style A60T

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THEY maintain uniform time throughout a building, eliminating all confusion and loss of time arising from difference in time of self contained clocks. The Secondary System is the most efficient because all clocks are synchronous with the master clock.

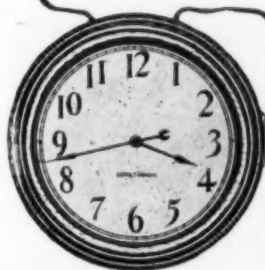
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After it has been installed the Vender is self-sustaining and the students are provided with a sanitary piece of high-grade soap without any expense to the Board.

The system is always popular among the students because it gives them just the kind of soap they want at whatever hour of the day they want it.

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## Sanitary Steel Furniture Modern Equipment



A Sanitary Adjustable Movable Chair Desk

LET US BID ON YOUR REQUIREMENTS,  
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Note the Two-Piece Steel Adjustable Desk below



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Make up specification early and order early this year.

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(EDUCATIONAL DEPARTMENT)

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A prominent educator, according to the Youth's Companion, tells this story to illustrate the pride all collegians take in their *alma mater*. He studied at a state university where co-education was strongly rooted. For a Latin teacher he had a man famous for the success of his peculiar language method.

After I had been out of college a few years, I became inspector of high schools for the state university in another state. In a lonely, out-of-the-way town I found a woman who taught Latin so well that I thought she could have learned it nowhere but from my own old professor.

I did not ask her outright, but began talking, in a rambling way, about her method. I found excuse to pronounce some Latin words, and now and then I would bring in a phrase which I knew the professor was fond of using.

The woman's face took on a puzzled expression, as if she were dimly remembering something. Then she began to look at me suspiciously, and a half-smile slowly dawned in her eyes.

At last I launched into one of the professor's funny stories, which I knew he must have repeated year after year. The evidence was complete. She waited for no more. She reached for my hand, and her face showed how much she had missed the old college associations in that lonely spot and how dear in her memory they still were.

"Tell me," she exclaimed, "are you a Michigan man?"

"I am," I confessed.

"So am I."

### An Adage Disputed.

"Do you believe in the saying that language is used for the concealment of thought?"

"No," replied Miss Cayenne; "in much of the language you hear you haven't even the comforting suspicion that there may be a thought in hiding."

### Why College Men Succeed.

"Do you think college is doing your son any practical good?"

"Unquestionably. He's already learned to write the most compelling money-getting letters imaginable."

"Indeed! He's taking a business course, then?"

"Oh, no; he writes them to me.—Judge.

Teacher: "Now, what did Crusoe do when he found himself alone on this island?"

Sammy (in feverish haste): "Teacher, I know, I know. He sang a song for four dollars. We got it on our phonograph."

### As He Knew It.

Teacher: Tommy, can you spell "fur?"

Thomas: Yes, sir; f-u-r.

Teacher: That's right. Now can you tell me what fur is?

Thomas: Yes, sir. Fur is an awful long way.

### A Little Knowledge.

A school examination in England elicited the following definitions:

"Noah's wife," wrote one boy, "was called Joan of Arc. "Water," wrote another, "is composed of two gases, oxygen and cambrigen." "Lava," replied a third youth, "is what the barber puts on your face." "A blizzard," insisted another child, "is the inside of a fowl."

### Sticking to the Subject.

A little boy's first composition was about a pig. This is the way he wrote it:

"Pigs are very queer animals. The pig has its uses. Our dog don't like pigs. His name is Nero. Our teacher read a piece one day about a wicked king named Nero. I like good men. My papa is an awful good man. Men are very useful. They have a great many uses which I can't stop to tell them all. This is all I can think of about the pig."

### Some Baby!

A schoolmaster had just finished a lesson on "Food" when a little boy put up his hand. On being asked what he wanted he replied:

"Please, sir, Jones said he knew a baby that was brought up on elephant's milk, and it gained ten pounds in weight every day."

"Jones ought not to tell you such rubbish," said the master. Then, addressing Jones, he added, "Tell me whose baby was brought up on elephant's milk?"

To which Jones hesitatingly replied: "Please, sir, it was the elephant's baby."



### What Could the Teacher Do?

I once conceived the beautiful idea," says a Philadelphia school teacher, "of requiring that my pupils should write for their daily exercise a brief account of a baseball game.

"One boy sat thru the period seemingly wrapped in thought, while the others worked hard and turned in their narratives. After school I approached the desk of the laggard.

"I'll give you five minutes to write that description," I said, sternly. "If it is not done by that time I shall punish you."

"The lad promptly concentrated all his attention upon the theme. At last, with joyful eagerness, he scratched a line on his tablet and handed it to me. It read:

"Rain—no game."

### Truly Patriotic.

"I trust," said the anxious parent, "that there is nothing in the college curriculum that will endanger my son's patriotic spirit."

"My dear madam," said the professor, "our school fairly breathes the atmosphere of the new Americanism on all sides. We have even cut out the hyphen in the use of compound words."

### The Same Result.

Mother had been helping her little girl with her arithmetic problems, and hoped that she had attained satisfactory results. At night, however the child reported that her answers had been all wrong.

"Oh, I'm so sorry, dear," said mother. "I suppose you felt very badly over it."

"Oh, I didn't worry, and you needn't either," returned the sage little maiden. "All the other mothers had got them wrong too."

### A Mystery to Him.

"Are you laughing at me?" demanded the professor sternly of his class.

"Oh, no, sir," came the reply in chorus.

"Then," asked the professor even more grimly, "what else is there in the room to laugh at?"

### Perplexity.

First Modern Parent: Aren't your two children something of a problem?

Second Modern Parent: Yes, indeed. They go away to school for thirty-eight weeks, to camp for ten, and that leaves four whole weeks when I don't know where to send them.—Life.

The kindergarten had been studying the wind during the full fifteen minutes—its power, effects, etc.—until the subject was pretty well exhausted. To stimulate interest the kindergarten said in her most enthusiastic manner:

"Children, as I came to school today in the trolley car the door opened and something came softly in and kissed me on the cheek. What do you think it was?"

And the children joyfully answered: "The conductor!"



# Educational Trade Directory

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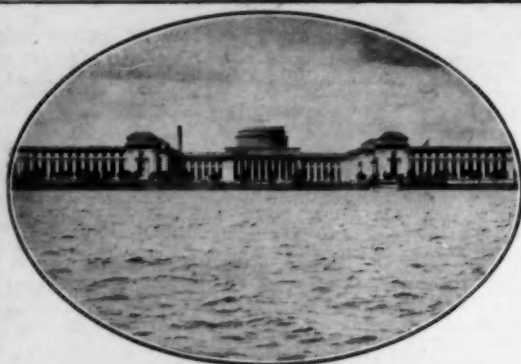
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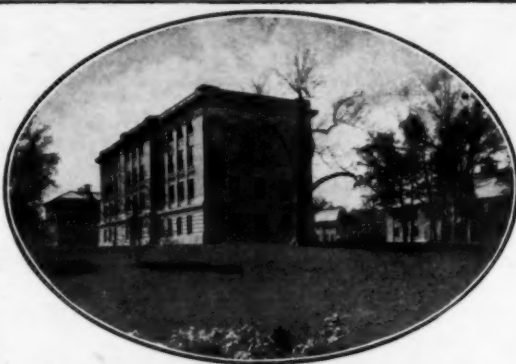
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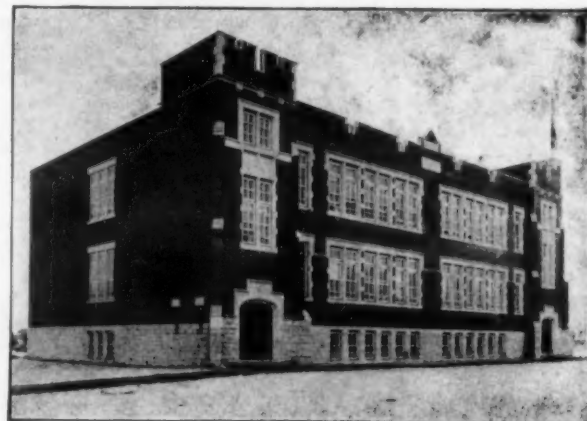
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